

PUBLIC NOTICE
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY (LDEQ)
BFI WASTE SYSTEMS OF LOUISIANA, LLC
COLONIAL LANDFILL
TECHNICALLY COMPLETE SOLID WASTE PERMIT APPLICATION RENEWAL

The LDEQ, Office of Environmental Services, has determined that a Solid Waste Renewal Application for BFI Waste Systems of Louisiana, LLC, P.O. Box 605, Sorrento, LA 70778 for the Colonial Landfill is technically complete and acceptable for public review. **The facility is located at 5328 Highway 70, approximately 1 mile south of LA Highway 22, Sorrento, Ascension Parish.**

BFI Waste Systems of Louisiana proposes to continue operations of the existing Type I & II solid waste landfill.

Written comments, written requests for a public hearing or written requests for notification of the final decision regarding this permit action may be submitted to Ms. Soumaya Ghosn at LDEQ, Public Participation Group, P.O. Box 4313, Baton Rouge, LA 70821-4313. **Written comments and/or written requests must be received by 12:30 p.m., Tuesday, October 23, 2007.** Written comments will be considered prior to a final permit decision.

If LDEQ finds a significant degree of public interest, a public hearing will be held. LDEQ will send notification of the final permit decision to the applicant and to each person who has submitted written comments or a written request for notification of the final decision.

The technically complete solid waste permit renewal application is available for review at the LDEQ Public Records Center, Room 127, 602 North 5th Street, Baton Rouge, LA. Viewing hours are from 8:00 a.m. to 4:30 p.m., Monday through Friday (except holidays). **The available information can also be accessed electronically on the Electronic Document Management System (EDMS) on the DEQ public website at www.deq.louisiana.gov.**

Additional copies may be reviewed at Ascension Parish Library, Gonzales Branch, 708 S. Irma Blvd., Gonzales, LA and Ascension Parish Council, 208 E. Railroad Avenue, Gonzales, LA.

Inquiries or requests for additional information regarding this permit action should be directed to Elizabeth Kashefi, LDEQ, Waste Permits Division, P.O. Box 4313, Baton Rouge, LA 70821-4313, phone (225) 219-3068.

Persons wishing to be included on the LDEQ permit public notice mailing list or for other public participation related questions should contact the Public Participation Group in writing at LDEQ, P.O. Box 4313, Baton Rouge, LA 70821-4313, by email at degmaillistrequest@la.gov or contact the LDEQ Customer Service Center at (225) 219-LDEQ (219-5337).

Permit public notices including electronic access to general information from the technically complete solid waste permit application can be viewed at the LDEQ permits public notice webpage at www.deq.louisiana.gov/apps/pubNotice/default.asp and general information related to the public participation in permitting activities can be viewed at www.deq.louisiana.gov/portal/tabid/2198/Default.aspx.

Alternatively, individuals may elect to receive the permit public notices via email by subscribing to the LDEQ permits public notice List Server at www.doa.louisiana.gov/oes/listservpage/ldeq_pn_listserv.htm

All correspondence should specify AI Number 4803, Permit Number P-0021, and Activity Number PER20050002.

Publication date: September 18, 2007

form_7131_r01

04/30/07

original to JCSW
 Sm
 copy to Sw/63/Thomas
AVG



PROVIDENCE

COPY

PER20050002

LDEQ RECEIPT

1201 Main Street
 Baton Rouge, LA 70802
 (225) 766-7400

P.O. Box 31
 Sulphur, LA 70664
 (337) 528-0066

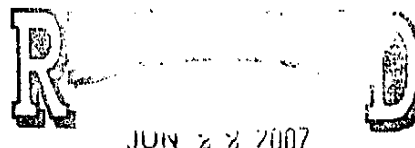
450 E. Pass Rd., #106
 Gulfport, MS 39507
 (228) 897-7676

1200 Walnut Hill Lane, #1000
 Irving, TX 75038
 (972) 550-9326

2007 JUN 21 PM 4:20

June 21, 2007

Louisiana Department of Environmental Quality
 Office of Environmental Services
 P.O. Box 4313
 Baton Rouge, Louisiana 70821-4313
 Attn: Mr. Bijan Sharafkhani



JUN 22 2007

LDEQ

Re: Final Document Submittal
 BFI Waste Systems of Louisiana, LLC
 Colonial Landfill
 TD-005-0532/P-0021
Agency Interest Number #4803 ✓
 Providence Engineering Project Number 005-018-016

Dear Mr. Sharafkhani:

Providence Engineering and Environmental Group LLC, (Providence) on behalf of BFI Waste Systems of Louisiana, LLC, hereby submits to the Louisiana Department of Environmental Quality (LDEQ), Permits Division six copies of the technically complete permit renewal application.

This document includes the revised financial assurance documentation as requested by LDEQ. Additional changes to the final document were made to the following sections of the application:

- Revised signature for Part I and the 1701 addendum, including the signatory authority authorization
- Revised Special Waste Plan and Random Inspection Plan to better reflect operations at the landfill
- Implementation schedule (Area II closure changed to 2008)

Please do not hesitate to contact me at (225) 766-7400 if you have any questions or if you need any additional information.

Sincerely,
 Providence Engineering and Environmental Group LLC

Renee L. Pittman
 Renee L. Pittman

RLP/dlk

cc: Allen Bradburn, BFI
 Burgess Stengl, BFI

**BFI WASTE SYSTEMS OF LOUISIANA, LLC
COLONIAL LANDFILL
SORRENTO, LOUISIANA
ASCENSION PARISH**

**SOLID WASTE PERMIT RENEWAL
APPLICATION**

**AGENCY INTEREST NUMBER 4803
TD-005-0532/P-0021**

VOLUME I OF III

JUNE 2007

Prepared By:



PROVIDENCE

**Providence Engineering And Environmental Group LLC
1201 Main Street
Baton Rouge, Louisiana 70802
(225) 766-7400**

Providence Engineering Project No. 018-005-016

BFI WASTE SYSTEMS OF LOUISIANA, LLC

INTRODUCTION

LAC 33:VII.519	PART I: PERMIT APPLICATION FORM
LAC 33:VII.520	ADDENDUM TO PERMIT APPLICATIONS/LAC 33:I.1701
LAC 33:VII.521	PART II: SUPPLEMENTARY INFORMATION, ALL PROCESSING AND DISPOSAL FACILITIES
LAC 33:VII.523	PART III: ADDITIONAL SUPPLEMENTARY INFORMATION

LIST OF TABLES**Table**

- 1 Summary of Piezometer/Monitor Well Cross Sections
- 2 Summary of Potentiometric Elevations

LIST OF FIGURES**Figure**

- 1 Site Location Map
- 2 Flood Zone Map
- 3 Aerial Photograph
- 4 Well Location Map
- 4A Fault Map
- 5 Facility Layout Plan
- 6 Aquifer Recharge Map
- 7 Soil Cross Section Location Map
- 8 Boring Location Map
- 9 Isometric Soil Profile
- 10 Geological Cross-Section of Ascension Parish, Louisiana
- 11 1996 Quarterly Potentiometric Maps Zone 2
- 12 Groundwater Contour Maps Zone 2
- 13 1996 Quarterly Potentiometric Maps Zone 3
- 14 Groundwater Contour Maps Zone 3

BFI WASTE SYSTEMS OF LOUISIANA, LLC

- 15 1996 Quarterly Potentiometric Maps Zone 5
- 16 Groundwater Flow Net
- 17 NORCO Aquifer (NORC) Potentiometric Map 3/78
- 18 NORCO Aquifer (NORC) Potentiometric Map 6/92
- 19 Piezometric Surface of Major Aquifers During Annual Low and High Stage of the Mississippi River
- 20 Piezometers/Monitor Wells Locations Map

LIST OF APPENDICES

Appendix

- A Zoning Affidavit
- B Proof of Public Notice
- C Proof of Signatory Authority
- D Environmental Documentation
- E Land Use Documentation/Population Density Documentation
- F USACE Section 404 Permit Application
- G Water Well Survey/Seismic Survey/Well Status Reports
- H Historical Drawings
- I Engineering Drawings
- J R.S. 2157 Certifications
- K Special Waste Acceptance Plan/Random Inspection Plan
- L Engineering Analysis/Additional Engineering Calculations
- M Soil Cross Sections
- N Soil Boring Logs
- O Geotechnical Report
- P Slug Test Results
- Q Certification Statement
- R Soil Calculations
- S Daily Cover Operations Procedure (Hydromulch Synthetic Cover)
- T QA/QC Procedures for Clay Liner and Cap Construction/ CQA Plan for Synthetic Bottom and Cap Liner Installation

BFI WASTE SYSTEMS OF LOUISIANA, LLC

- U Groundwater Sampling and Analysis Plan
- V Soil Bentonite Slurry Cutoff Wall Quality Assurance Plan
- W Monitoring Well Cross Sections
- X Safety-Emergency - Contingency Plan
- Y Training Plan
- Z Operational Plan
- AA Gas Monitoring Procedures
- BB Implementation Schedule
- CC Closure and Post-Closure Cost Estimates
- DD Example of Closure Document
- EE Financial Documentation/Annual Report

BFI WASTE SYSTEMS OF LOUISIANA, LLC

INTRODUCTION

BFI Waste Systems of Louisiana, LLC (BFI) currently operates a Type I and II Landfill (Colonial Landfill) in Sorrento, Louisiana. In accordance with the Louisiana Administrative Code (LAC), LAC 33:VII.Subpart 1 Solid Waste Regulations, BFI is submitting a permit renewal application to the Louisiana Department of Environmental Quality (LDEQ), Office of Environmental Services, Permits Division to renew Standard Permit (P-0021). The facility is located on Louisiana Highway 70 in Sorrento, Louisiana approximately 1 mile south of Louisiana Highway 22.

The approval of the permit renewal application would allow for the continued operation of the existing solid waste landfill.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.519

PART I: PERMIT APPLICATION FORM

BFI WASTE SYSTEMS OF LOUISIANA, LLC

SOLID WASTE STANDARD PERMIT APPLICATION - PART I

(The form shall be completed in accordance with the instructions found in LAC 33:VII.519)

- A. Applicant (Permit Holder): BFI Waste Systems of Louisiana, LLC
- B. Facility Name: Colonial Landfill
- C. Facility Location/Description: 5328 Highway 70, Sorrento, Louisiana, approximately 1 mile south of LA Hwy 22
- D. Location: Section 42 Township 10S Range 3E
Parish: Ascension
Coordinates: Latitude - Degrees 30 Minutes 08 Seconds 59
Longitude - Degrees 90 Minutes 51 Seconds 37
- E. Mailing Address: P.O. Box 605, Sorrento, LA 70778
- F. Contact: Matt Robillard
- G. Telephone: (225) 675-8021
- H. Type and Purpose of Operation: (check each applicable line)
- Type I
- Industrial Landfill X
Industrial Surface Impoundment X
Industrial Landfarm
- Type I-A
- Industrial Incinerator Waste Handling Facility
Industrial Shredder/Compactor/Baler
Industrial Transfer Station
- Type II
- Sanitary Landfill X
Residential/Commercial Surface Impoundment X (see note below)
Residential/Commercial Landfarm

Note: The Type I Surface Impoundment may not be operated throughout the entire tenure of the solid waste permit as indicated in Section 521 of the application.

BFI WASTE SYSTEMS OF LOUISIANA, LLC**Type II-A**

Residential/Commercial Incinerator Waste Handling Facility
Residential/Commercial Shredder/Compactor/Baler

Residential/Commercial Transfer Station
Residential/Commercial Refuse-Derived Fuel

Type III

Construction/Demolition-Debris Landfill
Woodwaste Landfill
Compost Facility
Resource Recovery/Recycling Facility

Other**Describe**

- I. Site Status: Owned X Leased ___ Lease Term ___ Years**

(Note: If leased, provide copy of lease agreement)

- J. Operation Status: Existing X Proposed**

- K. Total Acreage 287.3 Processing Acreage N/A Disposal Acreage 203.6**

- L. Environmental Permits:**

Solid Waste Permit P-0021
 LPDES LA0064335
 Air Permit 0180-00035-00-V2

- M. Conformity with regional plans. Attach letter from the Louisiana Resource Recovery and Development Authority (LRRDA) stating that the facility is an acceptable part of the state-wide program.**

(Note: In accordance with R.S. 30:2307.B, LRRDA authority does not apply to solid waste disposal activity occurring entirely within the boundaries of a plant, industry, or business which generates such solid waste.)

This regulation is no longer applicable.

- N. Zoned: Yes X No**

Zone Classification

(Note: If zoned, include zoning affidavit and/or other documentation stating that the proposed use does not violate existing land-use requirements.)

See Appendix A

BFI WASTE SYSTEMS OF LOUISIANA, LLC**O. Types, Quantities, and Sources of Waste: Tons Per Week**

	Processing		Disposal	
	On-Site	Off-Site	On-Site	Off-Site
Residential	NA	NA	NA	10,000
Industrial	NA	NA	NA	10,000
Commercial	NA	NA	NA	4,000
Other	NA	NA	NA	1,200

P. Service Area: Louisiana
List of Parishes: Statewide

Q. Proof of Operator's Public Notice - Attach proof of publication of the notice regarding the permit application submittal as required by LAC 33:VII.513.A.

A copy of the public notice is included as **Appendix B.**

R. Certification: I have personally examined and am familiar with the information submitted in the attached document, and I hereby certify under penalty of law that this information is true, accurate, and complete to the best of my knowledge. I am aware that there are significant penalties for submitting false information, including the possibility of fine and/or imprisonment.

Signature

Date

Typed Name and Title Allen Bradburn
 Site Manager

(Note: Attach proof of the legal authority of the signee to sign for the applicant.)

See Appendix C.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.520

**ADDENDUM TO PERMIT APPLICATION
PER LAC 33:I.1701**

Media Type (check one)


Hazardous Waste ☐ Air ☒Solid Waste ☒ Water ☒Radiation Licensing ☐

Agency Interest Number: 4803

Is this a copy of a previously submitted form? Yes ☐ No ☒

If yes, indicate the original submittal date: _____

If yes, indicate the original permit number: _____

Department of Environmental Quality Permits Division P.O. Box 4312 Baton Rouge, LA 70821-4312 (225) 219-3041		Addendum to Permit Applications per LAC 33:I.1701		
Please Type Or Print	Company Name BFI Waste Systems of Louisiana, LLC		<input checked="" type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator	For Permits Division Use Only
	Parent Company (if Company Name given above is a division) Allied Waste Industries, Inc.			
	Plant name (if any) Colonial Landfill			
	Nearest town Sorrento	Parish where located Ascension		

1. Does the company or owner have federal or state environmental permits identical to, or of a similar nature to, the permit for which you are applying in other states? (This requirement applies to all individuals, partnerships, corporations, or other entities who own a controlling interest of 50% or more in your company, or who participate in the environmental management of the facility for an entity applying for the permit or an ownership interest in the permit.)

☒ Permits in Louisiana. List Permit Numbers: P-0021, LA0064335, 0180-00035-00-V2

☐ Permits in other states (list states): N/A

Do you owe any outstanding fees or final penalties to the Department? No ☒ Yes ☐

If yes, please explain. _____

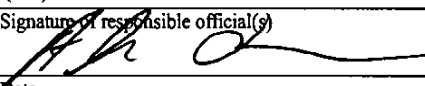
2. Is your company a corporation or limited liability company? No ☐ Yes ☒ If yes, attach a copy of your company's Certificate of Registration and/or Certificate of Good Standing from the Secretary of State. A copy of proof of registration is enclosed as Attachment 1.

Certification:

I certify, under provisions in Louisiana and United States law which provide criminal penalties for false statements, that based on information and belief formed after reasonable inquiry, the statements and information contained in this Addendum to the Permit Application, including all attachments thereto are true, accurate, and complete.

Responsible Official

Name Allen Bradburn
Title Site Manager
Company BFI Waste Systems of Louisiana, LLC
Suite, mail drop, or division
Street or P.O. Box 5328 Highway 70

City Sorrento	State LA	Zip 70778
Business phone (225) 675-8021		
Signature of responsible official(s) 		
Date 6-21-07		

The Department may require the submission of additional information if it deems such information necessary.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

ATTACHMENT 1

CERTIFICATE OF REGISTRATION

UNITED STATES OF AMERICA
State of Louisiana

Jox McKeithen

SECRETARY OF STATE

As Secretary of State, of the State of Louisiana, I do hereby Certify that

BFI WASTE SYSTEMS OF LOUISIANA, LLC

A DELAWARE limited liability company domiciled at
WILMINGTON,

Filed charter and qualified to do business in this State on
April 04, 2001,

I further certify that the records of this Office indicate
the company has paid all fees due the Secretary of State,
and so far as the Office of the Secretary of State is
concerned, is in good standing and is authorized to do
business in this State.

I further certify that this certificate is not intended to
reflect the financial condition of this company since this
information is not available from the records of this
Office.

*In testimony whereof, I have hereunto set
my hand and caused the Seal of my Office
to be affixed at the City of Baton Rouge on:*

January 14, 2003

Jox McKeithen

MBE 35068250Q

Secretary of State



BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521

**PART II: SUPPLEMENTARY INFORMATION, ALL
PROCESSING AND DISPOSAL FACILITIES**

BFI WASTE SYSTEMS OF LOUISIANA, LLC

**LOUISIANA ADMINISTRATIVE CODE
TITLE 33 - ENVIRONMENTAL QUALITY
PART VII - SOLID WASTE**

§521. Part II: Supplementary Information, All Processing and Disposal Facilities

The following information is required in the permit application for solid waste processing and disposal facilities. All responses and exhibits must be identified in the following sequence to facilitate the evaluation. Additionally, all applicable sections of LAC 33:VII.Chapter 7 must be addressed and incorporated into the application responses. If a section does not apply, the applicant must state that it does not apply and explain why.

All responses and exhibits are identified in this application. In addition, all applicable sections of LAC 33:VII.Chapter 7 have been addressed and incorporated into the corresponding sections of the application. All sections that do not apply have been explained.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.A.1.a

Location Characteristics. Standards pertaining to location characteristics are contained in LAC 33:VII.709.A (Type I and II facilities), LAC 33:VII.717.A (Type I-A and II-A facilities, and LAC 33:VII.719.A (Type III facilities).

The following information on location characteristics is required for all facilities.

Area Master Plans-a location map showing the facility, road network, major drainage systems, drainage flow patterns, location of closest population center(s), location of the public-use airport(s) used by turbojet aircraft or piston-type aircraft, proof of notification of affected airport and Federal Aviation Administration as provided in LAC 33:VII.709.A.2, location of the 100-year flood plain, and other pertinent information. The scale of the maps and drawings must be legible, and engineering drawings are required.

A site location map for the Colonial Landfill is included as **Figure 1** and depicts the following information:

- Road network
- Major drainage systems
- Drainage-flow patterns
- Location of closest population centers
- Nearest airport

Colonial Landfill is located in Ascension Parish, Louisiana in Section 42, Township 10S and Range 3E. The closest population centers are the towns of Sorrento and Burnside located approximately 2.6 miles and 3.1 miles, respectively, from the facility.

The nearest airport is the Louisiana Regional Airport located approximately 4.5 miles from the facility. Notification in accordance with §709.A.2 has been provided to the Louisiana Regional Airport and the Federal Aviation Administration. Correspondence received from the FAA is included as **Appendix D**. In response to the no objection determination provided by the FAA in regards to the Louisiana Regional Airport, Colonial Landfill will be properly supervised to assure that bird populations are not increasing and that appropriate control measures will be followed.

Normal access to the site is via LA Highway 70. As required by LAC 33:VII.709.A.1, access to the landfill within the facility is by all-weather roads that meet the demands of the facility and are designed to avoid, to the extent practicable, congestion, sharp turns, obstructions or other hazards conducive to accidents. The surface roadways will be adequate to withstand the weight of transportation vehicles.

A flood map derived from Ascension Parish flood zone data obtained from the Louisiana Oil Spill Coordinator's Office (LOSCO) 1999 dataset is included as **Figure 2**.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.A.1.b

A letter from the appropriate agency or agencies regarding those facilities receiving waste generated off-site, stating that the facility will not have a significant adverse impact on the traffic flow of area roadways and that the construction, maintenance, or proposed upgrading of such roads is adequate to withstand the weight of the vehicles.

The two main roadways leading to the facility are Interstate 10 and Louisiana Highway 70. Current landfilling operations do not adversely impacted Interstate Highway 10 or Louisiana Highway 70. However, due to the facility expansion, BFI has committed to permitting, designing, and constructing southbound and northbound turning lanes at the entrance of the landfill within the timeframes specified by the Louisiana Department of Environmental Quality (LDEQ). Correspondence from LDEQ stating no objection to the permit renewal is provided in **Appendix D**.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.A.1.c

Existing Land Use-a description of the total existing land use within three miles of the facility (by approximate percentage) including, but not limited to:

Residential;

Health-care facilities and schools;

Agricultural;

**Industrial and manufacturing;
Other commercial;**

Recreational; and

Undeveloped.

The existing approximate land use within three miles of the facility is provided below:

Residential	3.0%
Health-care facilities and schools	0%
Agricultural	34.0%
Industrial and manufacturing	3.7%
Other commercial	0.1%
Recreational	0.0%
Undeveloped.	56.2%
*Other	3.0%

* Other includes transportation and communication areas.

Documentation to support the description of the existing land use is provided in **Appendix E.**

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.A.1.d

Aerial Photograph- a current aerial photograph, representative of the current land use, of a one-mile radius surrounding the facility. The aerial photograph shall be sufficient scale to depict all pertinent features. (The administrative authority may waive the requirement for an aerial photograph for Type III facilities.

A current aerial photograph representative of the current land use within a one-mile radius surrounding the facility is shown on **Figure 3**.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.A.1.e.i

Environmental Characteristics-the following information on environmental characteristics:

A list of all known historic sites, recreation areas, archaeological sites, designated wildlife-management areas, swamps and marshes, wetlands, habitats for endangered species, and other sensitive ecological areas within 1,000 feet of the facility perimeter or as otherwise appropriate;

Wetlands are the only sensitive ecological areas found within 1,000 feet of the facility. A Section 404 Permit Application has been submitted to the United States Army Corps of Engineers (USACE). Once a permit decision has been rendered, BFI will forward the appropriate documentation to the Department.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.A.1.e.ii

Documentation from the appropriate state and federal agencies substantiating the historic sites, recreation areas, archaeological sites, designated wildlife-management areas, wetlands, habitats for endangered species, and other sensitive ecologic areas within 1,000 feet of the facility; and

Documentation from the Department of Culture, Recreation, and Tourism indicating that there are no historic, archaeologic, or recreational sites within 1,000 feet of the landfill footprint is included as **Appendix D**. Documentation from the Louisiana Department of Wildlife and Fisheries indicating that there are no rare, threatened, or endangered species, critical habitats, state or federal parks, wildlife refuges, scenic streams, or wildlife management areas within 1,000 feet of the landfill footprint is also included as **Appendix D**.

Wetlands are located within the expanded footprint of the facility. A Section 404 Permit Application has been submitted to the USACE. Documentation regarding this submission is included in **Appendix F** of this document. Any permit decisions regarding this application will be forwarded to LDEQ once received.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.A.1.e.iii.

A description of the measures planned to protect the areas listed from the adverse impact of operation at the facility;

Unavoidable impacts to wetlands under the jurisdiction of the New Orleans District of the USACE will be mitigated in coordination with state and federal resource and regulatory agencies.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.A.1.f**A wetlands demonstration, if applicable, as provided in LAC 33:VII.709.A.4**

- a. **Where applicable laws under Section 404 of the Clean Water Act or applicable state wetlands laws, the presumption that a practicable alternative to the proposed landfill is available that does not involve wetlands is clearly rebutted;**

An initial and subsequent search for alternative sites in coordination with USACE to determine the availability of properties for sale has been performed. The search parameters/data are defined as follows:

- Total acreage, as the site has to be a minimum of 120 acres
- Current land use of the property (forest, agricultural, industrial)
- Nature of surrounding land use, e.g. residential, churches, schools, cemeteries
- Flood zone status
- Subdivisions/residences within 2-3 miles of the site
- Presence of sloughs, creeks, bayous or other waterways on the site
- Churches, schools, cemeteries on or immediately adjacent to the site
- Proximity to paved state or US Highways
- Current zoning status

The alternative sites search failed to identify suitable locations to site a 120-acre landfill. Some properties of appropriate acreages were identified but they failed to pass the screening parameters as outlined above. Also, many of the properties identified that fit the parameter screening are under contract to residential subdivision developers. The effects of Hurricane Katrina have significantly affected the real estate market in the target area as developers have placed large acreage sites under contract in attempts to resolve housing shortages intensified by the storm. The development of residential and commercial projects has also been intensified by the federal government's release of the Gulf Opportunity Zone Act that has accelerated the search for large acreage tracts for residential subdivision development and multi-family projects.

- b. **The construction and operation of the facility will not:**
- i. **cause or contribute to the violations of any applicable state water quality standard;**

The LDEQ has issued a water quality certification stating that filling activities will not violate the water quality standards of LAC 33:IX.Chapter 11. A copy of this certification is included in **Appendix F** of the permit renewal application.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

- ii. **violate any applicable toxic effluent standard or prohibition under Section 307 of the Clean Water Act;**

BFI currently operates the facility in accordance with LPDES Permit LA0064335 for discharges of wastewater and storm water.

- iii. **Jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of a critical habitat, protected under the Endangered Species Act of 1973;**

As stated in the letter dated March 8, 2005 from the Department of Wildlife and Fisheries, there are no rare, threatened, or endangered species or critical habitats found within the project area; see Attachment 6.

- iv. **Violate any requirement under the Marine Protection, Research, and Sanctuaries Act of 1972 for the protection of a marine sanctuary.**

The landfill is not located in or near a marine habitat and will not violate any of the requirements under the Marine Protection, Research, and Sanctuaries Act of 1972.

- c. **the facility will not cause or contribute to significant degradation of wetlands. The owner or operator must demonstrate the integrity of the facility and its ability to protect ecological resources by addressing the following factors:**

- i. **erosion, stability, and migration potential of native wetland soils, muds, and deposits used to support the facility;**
- ii. **rosion, stability, and migration potential of dredged and fill materials used to support the facility;**
- iii. **the volume and chemical nature of the waste managed at the facility;**
- iv. **impacts on fish, wildlife, and other aquatic resources and their habitat from release of the solid waste;**
- v. **the potential effects of catastrophic release of waste to the wetland and the resulting impacts on the environment; and**
- vi. **any additional factors, as necessary, to demonstrate that ecological resources in the wetland are sufficiently protected.**

A wetlands demonstration has identified wetlands within 1,000 feet of the facility. BFI has submitted a Section 404 Permit Application to the USACE. USACE approved mitigations will proceed upon issuance of the Section 404 Permit.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

- d. to the extent required under Section 404 of the Clean Water Act or applicable state wetlands laws, steps have been taken to attempt to achieve no net loss of wetlands (as defined by acreage and function) by first avoiding impacts to wetlands to the maximum extent practicable as required by Paragraph A.4 of this Section; then, minimizing unavoidable impacts to the maximum extent practicable; and finally, offsetting remaining unavoidable wetland impacts through all appropriate and practicable compensatory mitigation actions (e.g., restoration of existing degraded wetlands or creation of man-made wetlands); and**

A wetlands demonstration has identified wetlands within 1,000 feet of the facility. BFI has submitted a Section 404 Permit Application to the USACE. USACE approved mitigations will proceed upon issuance of the Section 404 Permit.

- e. sufficient information is made available to make reasonable determination with respect with these determinations.**

A wetlands demonstration has identified wetlands within 1,000 feet of the facility. BFI has submitted a Section 404 Permit Application to the USACE. USACE approved mitigations will proceed upon issuance of the Section 404 Permit.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.A.1.g

Demographic Information- the estimated population density within a three-mile radius of the facility boundary, based on the latest census figures.

The estimated total population within a three-mile radius of the facility is 2,228 people, based upon data from the U.S. Census Bureau, Census 2000. The estimated population density is 57.9 people per square mile within the three mile radius of the facility. The following table provides a comparison of the estimated total population and population density within a 1, 2, and 3 mile radius of the facility.

Radius in Miles from Facility	Estimated Total Population	Estimated Housing Units	Estimated Population Density (persons/mi ²)
1.0	155	66	21.8
2.0	884	364	45.1
3.0	2,228	916	57.9

The estimated population and housing count for the area surrounding the facility is based upon LandView Census 2000 Population Estimator. The population estimator uses Census 2000 block points to provide the most precise estimate for small areas (*i.e.*, radii of 1-3 miles). The estimate is created by tallying Census 2000 block data for those block centroids (*i.e.*, calculated centers) whose coordinates fall within the circle defined by the radius. The demographic data is based upon the Census 2000 Population and Housing Summary File 1 (SF1) data.

Please see **Appendix E** for supporting documentation.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.A.2.a

The following information regarding wells, faults and utilities is required for Type I and II facilities:

Wells. Map showing the locations of all known or recorded shot holes and seismic lines, private water wells, oil and/or gas wells, operating or abandoned, within the facility and within 2,000 feet of the facility perimeter and the locations of all public water systems, industrial water wells, and irrigation wells within one mile of the facility. A plan shall be provided to prevent adverse effects on the environment from the wells and shot holes located on the facility.

The locations of the oil and/or gas wells (operating or abandoned) within the facility and within 2,000 feet of the facility perimeter were obtained from the LOSCO's 1999 dataset and are shown on **Figure 4**. The water wells registered with the LDOTD also are shown on **Figure 4**.

A table of the water wells identified on **Figure 4** and well status reports for the plugged and abandoned oil and gas wells are included in **Appendix G**.

Information regarding shot holes and seismic lines conducted by Soil Testing Engineers is also included in **Appendix G**.

Procedures will be followed in the event that an abandoned oil and/or gas well is encountered at the facility. The LDEQ and the Louisiana Office of Conservation will be notified and the guidelines for well abandonment will be followed. A registered engineer or geologist will supervise the plugging and abandonment of any well.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.A.2.b.i.**Faults**

scaled map showing the locations of all recorded faults within the facility and within one mile of the perimeter of the facility; and

According to the 1984 Geologic Map of Louisiana, Louisiana Geologic Survey, recorded faults are not located within the property boundaries of the Colonial Landfill or within one mile of the perimeter of the facility.

Figure 4A is a localized map drawn from the 1984 Geologic Map of Louisiana, Louisiana Geologic Survey.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.A.2.b.ii.

demonstration, if applicable, of alternative fault set-back distance as provided in LAC 33:VII.709.A.5.

Colonial Landfill is not located within 200 feet of a fault that has had displacement in Holocene Time. Therefore, this section does not apply.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.A.2.c.

Utilities. Scale map showing the location of all pipelines, power lines, and right-of-ways within the site.

Power lines that service the facility are provided in the Historical Drawings, **Appendix H, Exhibit No. 7**. A pipeline right-of-way is located on the southern edge of the property boundary as illustrated on the Facility Layout Plan, **Figure 5**.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.B.1.a

Facility Characteristics. Standards concerning facility characteristics area contained in LAC 33:VII.709.B (Type I and II facilities), LAC 33:VII.717.B (Type I-A and II-A facilities), and LAC 33:VII.719.B (Type III facilities). A facility plan, including drawings and a narrative, describing the information required below must be provided.

The following information is required for all facilities:

elements of the process or disposal system employed, including, as applicable, property lines, original contours (shown at not greater than five-foot intervals), buildings, units of the facility, drainage, ditches and roads;

BFI Waste Systems of Louisiana, LLC is a Type I and II Landfill located in Ascension Parish, Louisiana in Section 42, Township 10S, and Range 3E. Access to the site is via LA Highway 70. The landfill consists of Area I (certified closed), Area II, Area IIA, Area IIB, and Area III.

A mixing basin is utilized to solidify certain waste streams prior to disposal. The location of the active and future mixing basin can be viewed on **Figure 5**. Buildings located at the site include the gate house, administrative building, and public convenience center. These structures are also located on **Figure 5**.

A site location map illustrating the site boundaries, existing topographic features and drainage including ditching is presented on **Figure 1** and **Figure 5**. Existing buildings may be viewed on the Historical Drawings, **Appendix H** and the Facility Layout Plan, **Figure 5**.

A map of the original contours is not available; however, original elevations are thought to have varied between 2 to 5 feet above MSL. Original contours for Area III are shown on **Figure 1**, **Appendix I**.

Detailed historical drawings representing Areas I and II are included in **Appendix H**. Detailed drawings representing Areas IIA, IIB, and III are included in **Appendix I**.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.B.1.b**the perimeter barrier and other control measures;**

Natural barriers will serve as a perimeter barrier to prevent unauthorized ingress and egress to the facility, except by willful entry. The Panama Canal borders the facility on the north side, and a perimeter drainage channel provides a perimeter barrier on the east, south and a portion of the west side of the facility. Natural, dense vegetation serves as a perimeter barrier along the remaining western sections of the facility.

In addition, during operating hours the landfill gate house will be continuously manned to prevent unauthorized entry into the landfill. During non-operating hours, entrance gates will be locked to prevent unauthorized access.

Readable signs have been erected at the facility indicating the types of waste that may be received at Colonial Landfill.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.B.1.c**a buffer zone;**

A minimum 200-foot buffer zone exists between the property line and the landfill areas, excluding the certified closed Area I, as shown on **Figure 5**. No storage, processing or disposal of solid waste shall occur within the 200-foot buffer zone.

Information regarding Area I is provided within this document to show the landfill unit as a whole. Area I was used for waste disposal in the early 1980's prior to the buffer zone requirements and was closed prior to 1994. Therefore, the current buffer zone and waste disposal regulations do not apply to Area I.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.B.1.d**fire-protection measures;**

On-site fire protection measures include the following:

- Fire extinguishers located within designated landfill areas
- On-site water truck
- Water pumped from the Panama Canal
- Soil cover

In the event that Colonial Landfill requires off-site assistance for fire protection, the Sorrento Fire Department will respond. In the event that emergency medical care is required, Acadian Ambulance Service, Inc. will provide emergency transportation and St. Elizabeth's Hospital will provide emergency medical care services. For long term care, Ascension Hospital may also be used. Certification letters regarding off-site fire protection services and emergency medical services in accordance with R.S. 30:2157 are included in **Appendix J**.

In addition, access for fire, police, and medical protection is by paved all-weather roads that provide safe, easy access at all times. Access on site will be on all-weather roads with easy access from the public roads.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.B.1.e

landscaping and other beautification efforts;

As an existing facility, Colonial Landfill has installed extensive landscape and beautification measures. Colonial Landfill will continue beautification measures throughout the life of the landfill.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.B.1.f**devices or methods to determine, record, and monitor incoming waste;**Determine:

The gatehouse is equipped with a central control and record keeping system for tabulating information on the wastes. Utilizing scales, the system records the quantity (by wet-weight tonnage), origin (whether the wastes were generated in-state or out-of-state), sources, and types of incoming waste (*i.e.*, industrial, commercial, residential). Industrial waste will be compared to the pre-acceptance information and checked for conformity. In the event of scale malfunction, the amount of waste is estimated and recorded in cubic yards, and the scale is repaired as soon as practicable. Quantities delivered to the site via personal or commercial vehicles (*e.g.*, pick-up trucks) are recorded in cubic yards and converted to tonnage according to the appropriate conversion factor for the different types of waste streams (*e.g.* roofing shingles, tree debris). The conversion factors for the different types of waste streams are kept on file at the facility. A typical conversion factor for non-industrial waste is 3.5 yards to one ton (3.5:1). A typical industrial waste conversion factor is 1.3 yards to one ton (1.3:1).

Record:

All records will be maintained in a central location at the landfill for recordkeeping purposes.

Monitor:

A Quality Assurance/Quality Control (QA/QC) Plan for Special Waste Acceptance and a Landfill Gate and a Random Inspection Plan can be found in **Appendix K**. These plans detail waste monitoring methods including random inspections that will ensure the exclusion of prohibited wastes such as hazardous waste, polychlorinated biphenyl (PCB) waste, and unauthorized and unpermitted waste.

The Landfill Gate QA/QC process begins when a transporter of an approved industrial waste arrives at the facility with a shipment. Municipal waste does not require the same manifest as industrial waste. However, random inspection of municipal waste is conducted.

The transporter is required to present a BFI non-hazardous waste manifest, or a BFI-approved bill of lading.

The personnel at the landfill's gate will visually inspect the waste material and complete a waste disposal log. The representative waste sample obtained when the waste was originally approved serves as an aid in visual identification and variance control of incoming wastes. Wastes that are different from the approved waste will be rejected at the gate.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

Attachment 1A of the Special Waste Acceptance Plan/Random Inspection Plan, included as **Appendix K**, contains a flow diagram outlining acceptance, evaluation, and processing of on-site waste. Attachment 1B of **Appendix K** contains an example of a BFI non-hazardous waste manifest. This manifest is subject to change and will be updated accordingly.

Wastes entering the facility will be profiled in accordance with the Acceptance Evaluation and will be cataloged and monitored in accordance with the Landfill Gate QA/QC Plan. These plans are included in Part 1 and II of the Special Waste Acceptance Plan/Random Inspection Plan, **Appendix K**.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33.VII.521.B.1.g**NPDES discharge points (existing and proposed); and**

Discharges from operating units of all facilities will be controlled and will conform to applicable state and federal laws including the federal Clean Water Act and Louisiana Water Pollution Control Law.

Currently permitted outfalls are located on the Facility Layout Plan, **Figure 5**. However, these outfalls are subject to change, pending the Louisiana Pollutant Discharge Elimination System (LPDES) permit renewal. The current LPDES permit is included in **Appendix D**. However, this permit is subject to modification and renewal.

Storm water that falls on an area of the landfill having a minimum of 24 inches of interim compacted cover or high density polyethylene (HDPE) flexible membrane liner (minimum 30 mil) as interim compacted cover is considered uncontaminated and is channeled into the interior perimeter ditch. The interior perimeter ditch directs the flow to the perimeter discharge points that release the water into ditches that flow off-site.

In the long-term, leachate contaminated runoff, condensate, and storm water from areas of the landfill not having 24 inches of interim compacted cover or HDPE membrane liner will be routed via a lined ditch or force main to leachate storage tanks, the existing leachate pond, or a future wastewater treatment unit. Prior to the phased conversion of the current leachate storage pond into disposal Area IIA, this water may be routed to the leachate storage pond. Future discharges from any future wastewater treatment system will be properly permitted prior to being placed into service.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.B.1.h.

other features, as appropriate.

There are no other features.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.B.2.a

The following information is required for Type I and II facilities:

**areas for isolating non-putrescible waste or incinerator ash, and borrow areas;
and**

Asbestos waste may be disposed in a separate section of the active disposal area to prevent exposure to the general public.

Borrow material from excavated disposal cells or from off-site sources will be used as needed for expanded perimeter levees, liners, and/or daily cover.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.B.2.b**location of leachate collection/treatment/removal system.**

Original construction plans for Area I showed the northern half and the eastern portion of the southern half of Area I as having been excavated with one percent (1%) slope to the south. In both of these areas, leachate, rainwater, and seepage water were collected in temporary sumps constructed in the bottom of the excavation. Water collected in these sumps was pumped to the holding facility for treatment in accordance with the state discharge permit. When each area was filled, the sump was filled with waste and abandoned.

As shown in **Exhibit No. 4, Excavation Plan – Area 1 of Appendix H**, the western portion of the southern half of Area I was constructed with a leachate collection system consisting of leachate lines extending in an east to west direction and sloping at 0.005 feet/foot (ft/ft) to a leachate collection manhole. The bottom of the excavation sloped toward the leachate lines at two percent (2%).

The location of the collection/treatment/removal system for Areas IIA, IIB, and III are shown in **Figure 4 of Appendix I**. As can be seen by the referenced appendices, the construction of the leachate collection system varied in Areas I and II, but basically consisted of a network of perforated piping to facilitate leachate drainage in areas where leachate collection was required at the time of construction. Areas IIA, IIB, and III are designed with minimum six-inch diameter perforated collection pipes placed on 200-foot centers and graded to the perimeter of the landfill at a minimum 1-percent slope. The landfill bottom is configured with a minimum 2% slope toward the collection pipes.

In the long-term, leachate collected from all areas of the landfill is and will be pumped to the leachate storage tanks or future wastewater treatment system. All areas with a composite liner system are designed to remain pumped down to less than one-foot of head above the liner system. During the construction of Area IIA and III, clean out extensions will be provided as shown on the Area II Leachate Tie-In drawings included as **Figure 8 of Appendix I**.

Leachate collected from all areas of the landfill will be pumped to the leachate storage tanks or future wastewater treatment system. Prior to the conversion of the current leachate storage pond into disposal Area IIA, this water may be routed to the leachate storage pond. All areas with a composite liner system are designed to remain pumped down to less than one-foot of head above the liner system.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.C.1.a.

Facility Surface Hydrology. Standards governing facility surface hydrology are contained in LAC 33:VII.711.A (Type I and II landfills), LAC 33:VII.713.A (Type I and II surface impoundments), LAC33:VII.715.A (Type I and II landfarms), LAC 33:VII.717.C. (Type I-A and II-A facilities), and LAC 33:VII.719.C (Type III facilities).

The following information regarding surface hydrology is required for all facilities:

a description of the method to be used to prevent surface drainage through the operating areas of the facility;

Surface runoff that comes in contact with areas of the landfill that have either received interim compacted cover or final cover will be directed to the interior drainage ditch and then through culverts or low water crossings into the exterior perimeter drainage channel. Leachate, condensate, and storm water from other areas of the landfill will be routed to leachate storage tanks or the future waste water treatment system. Prior to the phased conversion of the current leachate storage pond into disposal Area IIA, this water may be routed to the leachate storage pond. Diversion berms will be constructed between areas having less than interim compacted cover and areas of interim compacted cover to prevent commingling of waters, and to prevent surface water from flowing through the operating areas of the facility.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.C.1.b**a description of the facility runoff/run-on collection system;**Run-off collection system:

The final cap of the landfill is designed with benches to minimize erosion. Runoff from areas that have received final cover will be directed through strategically placed let-down chutes into the interior drainage ditch and then subsequently into the exterior perimeter drainage channel through culverts or low-water crossings. Prior to placement of final cover, areas that have received a minimum of interim compacted cover will drain into the interior drainage ditch and into the exterior perimeter drainage channel, as well. Leachate condensate and storm water from other areas of the landfill will be routed to leachate storage tanks or the future wastewater treatment system. Prior to the phased conversion of the current leachate storage pond into disposal Area IIA, this water may be routed to the leachate storage pond. Diversion berms will be constructed between areas having less than interim compacted cover and areas of interim compacted cover to prevent commingling of waters, and to prevent surface water from flowing through the operating areas of the facility.

Run-on collection system:

Run-on to the site is and will be prevented and redirected around the site by an exterior perimeter levee and the exterior perimeter drainage channel. To ensure that the site is not affected by a 100-year flood, an exterior perimeter levee will be maintained at an approximate elevation of 8.0 feet MSL to aid in the diversion of surface water from off-site. The exterior perimeter drainage canal and levee system were designed as a dual system to redirect storm water around the site to the Panama Canal and to prevent run-on onto the site.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.C.1.c**the maximum rainfall from a 24-hour/25-year storm event;**

Based upon "Technical Paper No. 40, Rainfall Frequency Atlas of the United States" published by the U.S. Department of Commerce Weather Bureau, the maximum rainfall from a 24-hour, 25-year recurrence rainfall is approximately 10 inches. For purposes of calculations, the 24-hour/25-year storm event was utilized in sizing the drainage system. The interior perimeter ditch has been sized to handle the 25-year storm with no runoff off-site.

The existing interior ditching system was sized to handle the 24 hour/25-year storm event and has been in place for over 20 years. The north, east, and west areas of the landfill utilize the same ditching system that has proven to be sufficient in handling this type of storm event. Please see **Appendix L** for the original interior perimeter ditch calculations. As construction proceeds to Area III, the ditching system will be extended to the south side of the landfill.

Calculations demonstrating the facility's capacity to contain runoff from the 24-hour/25-year storm event associated with converting the existing leachate pond to waste disposal footprint in phases is also provided in **Appendix L**.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.C.1.d

the location of aquifer recharge areas in the site of within 1,000 feet of the site perimeter, along with a description of the measures planned to protect those areas from the adverse impact of operations at the facility; and

There are no known aquifer surface recharge areas at the site or within 1,000 feet of the site perimeter as indicated on **Figure 6**. The Mississippi River is thought to recharge the aquifer below this site; however, the Mississippi River is more than 1,000 feet from the site, and drainage from the site does not flow toward the Mississippi River.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.C.1.e

if the facility is located in a flood plain, a plan to ensure that the facility does not restrict the flow of the 100-year base flood or significantly reduce the temporary water-storage capacity of the flood plain, and documentation indicating that the design of the facility is such that the flooding does not affect the integrity of the facility or result in the washout of solid waste.

The site is located within Flood Zone A, below + 5.0 feet MSL. The perimeter levee system for Areas I, II, IIA, and IIB is constructed to an approximate elevation of + 8.0 feet MSL and protects the area within the facility boundaries from being inundated by a 100-year storm event. The perimeter levee system will also be constructed to an approximate elevation of + 8.0 feet MSL around Area III.

The site is located near the uppermost point of an extensive backwater system that drains to the northeast to Lake Maurepas. The backwater areas are bounded on the south and west by the ridge formed by the Mississippi River. Due to the extensive size of the backwater area in proportion to the raised area of the landfill, no significant increase in the water elevation will occur due to the landfill.

BFI WASTE SYSTEMS OF LOUISIANA, LLC**LAC 33:VII.521.D.1.a**

Facility Geology. Standards governing facility geology are contained in LAC 33:VII.709.C (Type I and II facilities), LAC 33:VII.717.D (Type I-A and II-A facilities), and LAC 33:VII.719.D (Type III facilities).

The following information regarding geology is required for Type I and Type II facilities:

isometric profile and cross-sections of soils, by type, thickness, and permeability;

Several geotechnical field exploration programs were conducted at the site during the past 25 years. In the vicinity of the existing landfill, approximately 82 soil borings were installed to a maximum depth of 220 feet below ground surface (bgs). In the vicinity of the proposed landfill expansion, approximately 25 soil borings were installed. Over 50 percent of these borings were advanced to depths greater than 50 feet bgs. A total of 12 borings were advanced to at least 100 feet bgs.

Based on the data from these soil borings, the soil stratigraphy underlying the landfill is shown on the cross sections included in **Appendix M**. Please refer to **Figure 7** for the soil cross sections map, **Figure 8** for the Boring Location Map and **Figure 9** for the isometric soil profile.

Based on these figures, a description of the soil strata found across the site is summarized below.

<u>Stratum Number</u>	<u>Depth to Top(ft. bgs)</u>	<u>Thickness (feet)</u>	<u>USCS Class</u>
I-A	0	48	CH, CL
I-1	20	3	CL, ML
I-2	28	8	CL, ML
II-3	48	7	CL, ML
III-A	55	12	CH, CL
III-4	58	5	ML, CL
III-B	63	15	CH, CL
IV-5	68	12	ML, SM, SC
IV-A	80	>30	CH, CL

In summary, the soil strata encountered to a depth of at least 100 feet bgs at the site are fine-grained soils of low permeability. Results of laboratory permeability tests for these soils indicate permeability values ranging mostly between 10^{-9} and 10^{-7} centimeters/second (cm/sec).

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.D.1.b

logs of all known soil borings taken on the facility and a description of the methods used to seal abandoned soil borings;

Soil boring logs are included as **Appendix N**. These include soil borings completed by Gulf Drilling Co., Inc. in 1982 and Soil Testing Engineers, Inc. in 1996 and 2004. The locations of the soil borings are depicted on **Figure 8**, Boring Location Map.

The soil boring logs (**Appendix N**) indicate that the soil was continuously sampled using thin-wall and/or split-spoon devices to at least 30 feet below the base of the landfill. The maximum depth of exploration to characterize the shallow geology was 220 feet bgs at boring B-8. Therefore, the requirements of Standard LAC 33:VII.709.C.1.c.ii and iii are satisfied. The maximum spacing between the borings is 450 feet or less, in conformance with the requirements of LAC 33:VII.709.C.1.c.i. (Refer to **Figure 8**, Boring Location Map.)

As indicated on the boring logs, the boreholes were either converted to piezometers/monitor wells or grouted to the surface with a cement-bentonite mix. Procedures for plugging and abandoning soil borings or converting to piezometers/wells generally conform with "Water Well Rules, Regulations, and Standards, State of Louisiana" as adopted by the LDOTD, Water Resources Section.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.D.1.c

results of tests for classifying soils (moisture contents, Atterberg limits, gradation, etc.), measuring soil strength, and determining the coefficients of permeability, and other applicable geotechnical tests;

Borings, geotechnical field tests, and laboratory tests were conducted according to the applicable standards of the American Society for Testing and Materials (ASTM) or the United States Environmental Protection Agency (USEPA).

The geotechnical testing programs included natural moisture content determinations, Atterberg limits determinations, sieve analyses, dry density determinations, compaction tests, permeability tests, consolidation tests, direct shear tests, unconsolidated undrained triaxial tests, and unconfined compression tests. The results of these tests are included in **Appendix N**. Results of soil mechanics tests consisting of natural moisture content, unit weights, strength tests, and Atterberg limits are also shown in tabular form at the corresponding depths on the boring logs (**Appendix N**).

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.D.1.d

geologic cross-section from available published information depicting the stratigraphy to a depth of at least 200 feet below the ground surface;

A regional geological cross-section for the area is included as **Figure 10**. The cross-section depicts the stratigraphy to a depth of over 200 feet bgs.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.D.1.e

for faults mapped as existing through the facility, verification of their presence by geophysical mapping or stratigraphic correlation of boring logs. If the plane of the fault is verified within the facility's boundaries, a discussion of measures that will be taken to mitigate adverse effects on the facility and the environment;

Figure 4A is a localized map drawn from the 1984 Geologic Map of Louisiana, Louisiana Geologic Survey. As shown on this figure there are no known recorded faults mapped as existing through the facility; therefore, LAC 33:VII.521.D.1.e is not applicable.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.D.1.f

for a facility located in a seismic impact zone, a report with calculations demonstrating that the facility will be designed and operated so that it can withstand the stresses caused by the maximum ground motion, as provided in LAC 33:VII.709.C.2; and

The term "seismic impact zone" is defined as an area with a 10 percent or greater probability that the maximum horizontal acceleration in lithfield earth material, expressed as a percentage of the earth's gravitational pull (g), will exceed 0.10 g in 250 years.

The entire state of Louisiana lies in seismic risk zone 1, with ground acceleration less than 0.1 g. Hence, the facility is not located in a seismic impact zone; therefore, LAC 33:VII.521.D.1.f is not applicable.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.D.1.g

for a facility located in an unstable area, a demonstration of facility design as provided in LAC 33:VII.709.C.3.

The term "unstable area" is defined by both the USEPA and the LDEQ in identical terms:

"Unstable Area - a location that is susceptible to natural- or human-induced events or forces capable of impairing the integrity of some or all of the landfill structural components responsible for preventing releases from a landfill. Unstable areas can include poor foundation conditions, areas susceptible to mass movement, and Karst Terranes.

Further applicable definitions are:

"Poor Foundation Conditions – those areas where features exist that indicate that a natural- or man-induced event may result in inadequate foundation support for the structural components of a facility."

"Areas Susceptible to Mass Movement – those areas of influence (*i.e.*, areas characterized as having an active or substantial possibility of mass movement) where the movement of earth material at, beneath, or adjacent to the facility, because of natural- or man-induced events, results in the downslope transport of soil and rock material by means of gravitational influence. Areas of mass movement include, but are not limited to, landslides, avalanches, debris slides and flows, soil fluctuation, block sliding, and rock fall."

"Karst Terranes – areas where Karst topography, with its characteristic surface and subterranean features, is developed as the result of dissolution of limestone, dolomite, or other soluble rock. Characteristic physiographic features present in Karst terranes include, but are not limited to, sink holes, sinking streams, caves, large springs, and blind valleys."

The subsurface conditions at the Colonial Landfill are not subject to natural events capable of impairing the integrity of landfill components. Geologic references, *e.g.*, Howe, H.V., et.al., "Geology of Iberville and Ascension Parishes", Geol. Bulletin No. 13, LA Geol. Survey, New Orleans, LA, 1938, do not indicate areal subsidence, salt dome growth, Karst Terranes, naturally-induced mass movements etc., at the site. Human-induced activity (placement of the waste mass) will produce certain effects. The facility has been designed to account for these effects so as to ensure the integrity of the various structural components.

The natural shallow fine-grained soils beneath the facility are inherently stable. The existing landfill has been and will continue to be constructed and operated in ways that will allow the soils to remain stable. The clays and clayey soils become more consolidated and stronger under the load of the waste. Some subsidence will occur. This has been taken into account in the design of the facility and is ordinary and routine

BFI WASTE SYSTEMS OF LOUISIANA, LLC

in the design of landfill facilities in Louisiana. The landfill has been designed to ensure structural integrity of all components of the facility for the protection of human health and the environment.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.D.2

The following information regarding geology is required by Type III woodwaste, and construction/demolition-debris facilities:

The landfill is not a Type III facility. Therefore, the above citation is not applicable.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.E.1.a.i

Facility Subsurface Hydrology. Standards governing facility subsurface hydrology are contained in LAC 33:VII.715.A (Type I and II landfarms).

The following information on subsurface hydrology is required for all Type I facilities and Type II landfills and surface impoundments:

delineation of the following information for the water table and all permeable zones from the ground surface to a depth of at least 30 feet below the base of excavation:

areal extent beneath the facility;

The cross sections and isometric profile indicate five distinct permeable units (identified as Zones 1 through 5). The lithology of these zones is shown on the cross-sections (**Appendix M**) and boring logs (**Appendix N**).

Zone 1 is the uppermost water bearing permeable zone and is typically located near ground surface to a depth of -12 feet MSL. This zone is laterally and structurally inconsistent across the facility. The individual permeable units that are included in this zone are not likely to be hydraulically connected. This zone was being monitored by one well, W-4R. (Note: Monitoring well W-2 was screened in a non-permeable clay unit located between -10 feet MSL and -20 feet MSL). A potentiometric map is not applicable to Zone 1.

Zone 2, also comprised of relatively inconsistent, water bearing permeable units is located at approximately -20 feet MSL. This zone is located entirely above the base of the slurry wall surrounding the existing landfill footprint. As shown on the potentiometric maps for Zone 2 (see **Figures 11** and **12** for 1996 quarterly potentiometric maps Zone 2 and Groundwater Contour Maps Zone 2, respectively), the wall affects the groundwater flow within the zone. Groundwater flow is inward or towards the facility as evidenced by data from monitoring well W-17, located inside the wall. Generally, flow outside the slurry wall is in a northerly direction. Additionally, based on the proximity of this zone to the maximum depth of excavation (-31 feet MSL), Zone 2 may have been largely excavated within the boundaries of the slurry wall (particularly across the southern half of the existing landfill).

Zone 3, located at approximately -40 feet MSL, appears to be the most continuous permeable unit at the site. This zone is largely beneath the maximum base of excavation (-31 feet MSL) and is recognized as the uppermost aquifer. Because Zone 3 is located both above and below the slurry wall, groundwater flow is affected. Potentiometric maps (**Figure 13** for 1996 Quarterly Potentiometric Maps Zone 3 and **Figure 14** for Groundwater Contour Maps Zone 3) indicate a northerly flow direction outside the wall. Potentiometric data from monitoring well W-16, located inside the slurry wall, indicate flow is also inward or towards the existing landfill.

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Zone 4 is found at approximately -50 feet MSL. The zone is more continuous across the southern half of the site than the northern half. No wells are currently monitoring this zone; therefore, potentiometric maps are not applicable.

Zone 5 is located at approximately -60 feet MSL. The zone is largely continuous across the southern half of the site where the zone appears to be part of a channel sand sequence. Previously, three wells (W-22, W-8B, and W-21) monitored this zone. As shown on the potentiometric maps (see **Figure 15**, 1996 Quarterly Potentiometric Maps Zone 5) groundwater flow is northerly and appears to be unaffected by the slurry wall.

A vertical flow map (**Figure 16**, Groundwater Flow Net) is provided to show the groundwater flow between the separate units. As shown, flow is upward. Data from the 1996 potentiometric maps for Zone 2, 3, and 5 (**Figures 11, 13, and 15**). These potentiometric elevations are summarized in **Table 2**.

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LAC 33:VII.521.E.1.a.ii

thickness and depth of the permeable zones and fluctuations;

The following represents the average thickness and depth of the five distinct permeable units (identified as Zones 1 through 5):

Zone Number	Average Thickness (feet)	Depth to top (feet bgs)
1	3	20
2	8	28
3	7	48
4	5	58
5	12	68

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LAC 33:VII.521.E.1.a.iii

direction(s) and rate(s) of groundwater flow based on information obtained from piezometers and shown on potentiometric maps; and

Potentiometric maps for Zones 2, 3, and 5 are presented as **Figures 11-15**. The general direction of flow for Zone 2 is inward towards the facility. Zone 3 also has flowed inward, but is generally to the north. Zone 2 and Zone 3 are both affected by the slurry wall. Interpretation of the hydraulic gradients in these zones is a result of extrapolating groundwater contours across the slurry wall; two interior wells (W-16 and W-17) provide some basis for extrapolation. The potentiometric mapping of Zone 5 indicates that groundwater flow is in a northerly direction. Flow rates in Zones 2 and 3 are on the order of 0.2 to 1.0 feet per year. Zone 5 has a flow rate on the order of 0.5 to 5.0 feet per year.

The mean rate of groundwater flow in these zones was calculated based on the following formula (Darcy's Law):

$$V = Ki/n_e, \text{ where}$$

V = Mean linear groundwater velocity (ft/day)

i = Hydraulic gradient (ft/ft)

n_e = Effective soil porosity (0.20 for the soil type)

K = Average hydraulic conductivity (ft/day)

(Estimated from slug tests, **Appendix P**)

The vertical groundwater potentiometric conditions are depicted on **Figure 16**, Groundwater Flow Net. The water levels in the deeper zones are generally higher than the water levels in the overlying strata, indicating that the water in deeper strata is confined under artesian pressure by the thick clay strata separating the permeable zones. Based on the geotechnical laboratory permeability tests, the clay strata have vertical permeability values ranging mostly between 10^{-9} and 10^{-7} cm/sec. This low vertical permeability indicates that no significant vertical movement of water exists through the clay layer. The thickness, natural upward gradient, and low permeability of the clay act to isolate the deeper strata from the landfill.

Further confirmation of the groundwater flow direction will be performed with the use of newly-installed piezometers and wells (CDM-1, CDM-11, CDM-22, CDM-23, CDM-24, CDM-25, and CDM-26) in the vicinity of Area III.

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LAC 33:VII.521.E.1.a.iv

any change in groundwater flow direction anticipated to result from any facility activities.

The groundwater flow in the shallow permeable Zones (1, 2, and 3) appears to have been altered from a general south to north direction by the slurry wall. Thus, the flow is now inward or toward the landfill. The deeper permeable zone, Zone 5, flows from south to north. It is anticipated that future activities at the site will have no further impact on groundwater flow directions.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.E.1.b.i

**delineation of the following, from all available information, for all recognized aquifers which have their upper surfaces within 200 feet of the ground surface:
areal extent;**

The NORCO Aquifer is located below the site, with the top of the aquifer located approximately 200 feet below the site and extending down to approximately 400 feet below the site. The NORCO Aquifer is located under much of this part of Ascension Parish. However, just to the southeast of the site, the NORCO Aquifer becomes salty. **Figure 17**, NORCO Aquifer Potentiometric Map 3/78 and **Figure 18**, NORCO Aquifer Potentiometric Map 6/92, show potentiometric maps for the NORCO Aquifer.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.E.1.b.ii

thickness and depth to the upper surface;

The thickness of the NORCO Aquifer below the site is approximately 200 feet, with the upper surface of the aquifer being located approximately 200 feet below the surface.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.E.1.b.iii**any interconnection of aquifers; and**

Potentiometric levels in Zone 5 (the deepest zone monitored at the site) typically range from +0.13 to +5.07 feet MSL. Unpublished data for the NORCO Aquifer from 1978 and 1992 indicate a range from + 3.0 to + 13 feet MSL. (Note: This data is shown on the potentiometric maps, **Figures 17** and **18**.) Additionally, published potentiometric mapping of general aquifers shows even higher elevations (see **Figure 19**, Piezometric Surface of Major Aquifers During Annual Low and High Stage of the Mississippi River). The NORCO data indicates groundwater levels to be substantially above the level for Zone 5.

These levels clearly indicate that the hydraulic gradient is upwards from the NORCO Aquifer to Zone 5. Such gradient indicates a potential for upwards flow, but also effective blockage of the flow by the clay aquitards. Zones 2 and 3, and apparently Zone 5, are inclusions within the clay aquitard that confines the NORCO Aquifer to produce its artesian condition. It should also be noted that this upwards gradient adds to the hydraulic isolation of the site, since the natural potential is to push fluids back into the landfill, rather than to help them escape.

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LAC 33:VII.521.E.2.b.iv**direction(s) and rate(s) of groundwater flow shown on potentiometric maps.**

Direction of flow of the NORCO Aquifer varies with the elevation of the Mississippi River. **Figure 17**, NORCO Aquifer Potentiometric Map 3/78, shows the potentiometric level in March 1978, which indicates groundwater flow in a westerly direction. **Figure 18**, NORCO Aquifer Potentiometric map 6/92 shows the potentiometric level in June 1992, which indicates an easterly flow. The maximum (water particle) flow rate is about 50 to 100 feet per year.

Referring to published potentiometric maps (**Figure 19**, Piezometric Surface of Major Aquifers During Annual Low and High Stage of the Mississippi River), significant water level fluctuations occur in aquifers in the area. The major cause of water-level fluctuations in the aquifers is change in the stage level of the Mississippi River. As river stage increases, piezometric levels in the aquifers increase near the river, and the piezometric surface slopes away from the Mississippi River. During periods of low river stage, piezometric levels near the river decrease, and the piezometric surface slopes toward the Mississippi River.

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LAC 33:VII.521.E.2

The following information on subsurface hydrology is required for Type II landfills. Delineation of the following information for the water table and all permeable zones from the ground surface to a depth of at least 30 feet below the zone of incorporation:

The landfill is not a Type II landfarm. Therefore, this citation is not applicable.

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LAC 33:VII.521.F.1

Facility Plans and Specifications. Standards governing facility plans and specifications are contained in LAC 33:VII.711.B (Type I and II landfills), LAC 33:VII.713.B (Type I and II surface impoundments), LAC 33:VII.715.B (Type I and II landfills), LAC 33:717.E (Type I-A and II-A facilities), LAC 33:VII.721.A (Type III construction and demolition debris and woodwaste landfills), LAC 33:VII.723.A (Type III composting facilities), and LAC 33:VII.725.A (Type III separation facilities). Standards for groundwater monitoring are contained in LAC 33:VII.709.E (Type I and II facilities).

Certification-The person who prepared the permit application must provide the following certification:

"I certify under penalty of law that I have personally examine and I am familiar with the information submitted in this permit application and that the facility as described in this permit application meets the requirements of the Solid Waste Rules and Regulations. I am aware that there are significant penalties for knowingly submitting false information, including the possibility of fine and imprisonment."

The certification for the Permit Renewal Application is included in **Appendix Q**.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.F.2.a

The following information on plans and specifications is required for Type I and II facilities:

Detailed plan-view drawing(s) showing original contours, proposed elevations of the base of units prior to installation of the liner system, and boring locations;

A map of the original contours in Areas I and II, IIA, and IIB is not available; however, original elevations are thought to have varied between 2 and 5 feet above MSL. A map of original contours for Area III is included in **Figure 1 of Appendix I**.

Engineering drawings including elevations of the base of units prior to installation of the liner systems are included in **Appendices H and I**. **Exhibit No. 4 and 7 of Appendix H** includes Historical Drawings for Areas I and II, and **Figure 2 of Appendix I** includes this drawing for Areas IIA, IIB, and III.

The maximum final height of the landfill upon closure will be 128 feet msl.

Boring locations for the entire site are depicted on **Figure 8**.

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LAC 33:VII.521.F.2.b**Detailed drawings of slopes, levees, and other pertinent features;**

Typical details for liners, levees, final cover, and the leachate collection system are found in **Exhibits 4 and 8-10 of Appendix H** for Areas I and II. See **Figures 2-7 of Appendix I** for Area IIA, IIB, and III detail drawings, including slopes, levees, and other pertinent features.

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LAC 33:VII.521.F.2.c

The type of material and its source for levee construction. Calculations shall be submitted demonstrating that an adequate volume of material is available for the required levee construction.

The perimeter levee system around Areas I, II, IIA, and IIB of the landfill has already been constructed. Therefore, the only material required for the levee system will be for Area III. The soil excavation volume from Area III as calculated using AutoCad software is 964,100 cubic yards. The volume of soil material that will be needed for the construction of the levee around Area III is calculated by AutoCad software as 56,285 cubic yards. Hand calculations for excavation volumes and levee soil volumes were conducted to verify that the software-generated volumes were relatively accurate. These calculations are included as **Appendix R**. As can be seen from the calculations, ample soil exists for the construction of the levee system. A soil volume deficiency that may be encountered from other construction activities (*i.e.*, liner and cover) will be addressed by importing soil materials from an off-site source.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.F.3.a

The following information on plans and specifications is required for Type I, II, and III landfills:

Approximate dimensions of daily fill and cover; and

The dimensions of daily fill and cover will vary throughout the life of the operation. The width, depth, and thickness of the daily fill will vary each day based on the volume, the location of the working base within the site, weather, and soil conditions. The daily fill thickness varies between 10 and 20 feet, and the standard area of fill will be a 100- to 150-foot by 100- to 150-foot square area.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.F.3.b

The type of cover material and its source for daily, interim, and final cover. Calculations shall be submitted demonstrating that an adequate volume of material is available for daily, interim, and final cover.

Daily Cover Materials

The daily cover material will consist of silty or sandy clays with a minimum thickness of six inches at the end of the operating day or other approved alternate daily cover materials. The maximum hours of operation are 20 hours a day. Therefore, cover will be applied at a minimum daily (every 24 hours). The on-site clay (CH), silty clay (CL), and clayey silt (ML) meet the requirements of LAC 33:VII.711.B.2.a and can be used for daily cover. Approved daily cover materials for Colonial Landfill include the following:

- Tarps
- Treated Non-Hazardous Oil Field (NOW) Waste
- Spent Bauxite (Cajunite)
- Shredded/Chipped Tires
- Ash from the City of New Orleans Wastewater Treatment Plant
- Kaiser Aluminum Red Mud
- Paper Mill Sludge (Biomix)
- Spray-On Mulch (Fiber Mulch)

An operational plan for the spray-on mulch is provided in **Appendix S**.

Colonial Landfill may use other materials approved by the administrative authority that meets the standards of LAC 33:VII.711.B.2.a. In accordance with LAC 33:VII.711.B.2.d, alternative daily cover materials used at the facility will be available on a regular basis with accessibility regardless of weather and will demonstrate reasonably consistent composition and performance characteristics.

The use of daily cover will minimize vector breeding areas, control leachate generation, reduce fire hazard potential, reduce odor, provide an aesthetic appearance, and allow access during wet weather. Daily cover will control insect emergence and entrance.

Interim Cover Materials

Interim cover or interim compacted cover will be applied on all operating areas of the facility that do not receive solid waste for a period of longer than 60 days. Interim cover or interim compacted cover will be applied within 48 hours of the last receipt of solid waste in the operating area, unless otherwise approved.

Interim covers will be a 12-inch thick clayey soil layer. Interim compacted covers will be either a 24-inch thick clayey soil material or a minimum 30-mil HDPE liner. If HDPE liner is used as interim compacted cover, the liner material will be installed in the following manner; it will be rolled out over the waste, overlapped, and secured. The perimeter of the HDPE liner will be anchored (in trenches backfilled with soil or the equivalent) to

BFI WASTE SYSTEMS OF LOUISIANA, LLC

secure the interim compacted cover in place. Equipment that could potentially damage the HDPE liner will not be allowed directly onto the surface of an area with completed interim compacted cover. If vehicular traffic in these areas is necessary, earthen materials will be used to construct roads across HDPE-lined areas for accessibility. Any damage to the HDPE interim compacted cover noted during site inspections will be repaired as soon as practicable. The HDPE liner will be destroyed in-place or removed when operations resume in those areas that have received interim compacted cover.

The daily cover material and interim materials will minimize vector-breeding areas and animal attraction by controlling fly, mosquito, and other insect emergence, rodent burrowing for food and harborage, and bird and animal attraction. These materials will control leachate generation by minimizing external-moisture infiltration, minimize erosion, and utilize materials with minimum free-liquid content and minimum concentrations of constituents monitored in leachate. These materials will also reduce fire-hazard potential by minimizing inward movement of atmospheric oxygen, minimize blowing paper and litter, reduce noxious odors by minimizing outward movement of methane and other gases, provide an aesthetic appearance to the landfill operation, and allow accessibility regardless of weather.

Erosion control measures are in place for the interim cover to reduce the potential for erosion. The following practices are used, as necessary, for erosion control at the landfill:

- Minimizing disturbance of existing vegetation
- Diverting surface water away from any disturbed area
- Reducing the velocity of surface water
- Establishing vegetation
- Installing silt fences

The sources of Interim Cover will be accessible regardless of weather.

Final Cover

The final cover material will consist of at least 24 inches of recompacted clay liner (RCL) having a permeability of less than 1×10^{-7} cm/sec and a 40-mil flexible membrane liner (FML) installed directly over the recompacted clay. The FML will be limited to the flatter portions of the landfill (*i.e.*, approximate 4% sloped areas). A minimum of 6 inches of soil capable of supporting vegetation will cover the entire site.

An alternate to the RCL will be a geosynthetic clay liner (GCL) system, which will consist of a GCL overlaid by a 40 mil FML and covered by 18 inches of cover soil. On both the RCL and the GCL, the 40-mil FML will be limited to the flatter portions of the landfill (*i.e.*, approximate 4% sloped areas).

Colonial Landfill may utilize other covers that satisfy the purposes of minimizing infiltration of precipitation, fire hazards, odors, vector food and harborage, as well as discouraging scavenging and limiting erosion. Other covers will be approved by the administrative authority prior to use. Any alternate final cover will provide a

BFI WASTE SYSTEMS OF LOUISIANA, LLC

performance equivalent to or better than the final cover requirements provided in LAC 33:VII.711.E.3.a.ii and iii.

Calculations demonstrating that an adequate volume of material is available onsite for levee and liner construction, daily, interim, and final cover are included as **Appendix R**.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.F.4.a.

The following information on plans and specifications for the prevention of groundwater contamination must be submitted for Type I and II facilities:

Representative cross-sections and geologic cross-sections showing original and final grades, approximate dimensions of daily fill and cover, drainage, the water table, groundwater conditions, the location and type of liner, and other pertinent information;

Typical landfill cross-sections for Area I and Area II are shown in **Appendix H**. Typical landfill cross-sections for Areas IIA, IIB, and III are shown on the Engineering Drawings located in **Appendix I**.

Geologic cross-sections are found in **Appendix M**.

Water table and groundwater conditions are shown in the Geotechnical Report, **Appendix O**.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.F.4.b.

A description of the liner system, which shall include: calculations of anticipated leachate volumes, rational for particular designs of such systems, and drawings; and

The liner system used in the construction of the southwest corner of Area II is as follows: Below the 12-inch granular leachate collection system, a 3-foot recompacted clay liner and a 12-inch sand blanket was constructed on top of a 60-mil HDPE synthetic liner to protect the groundwater from contamination. The area that received this liner system is in the southwest corner of Area II, approximately 830 feet in an east-west direction by 900 feet in a north-south direction. This area was constructed in 1991.

The remaining section of Area II not included in the southwest corner, Area IIA, IIB and III will have a liner with the following design (listed from the top to the bottom):

- 12-inch granular leachate collection system
- Geocomposite drainage layer (optional)
- 60-mil HDPE synthetic liner
- 3-feet of recompacted clay with a maximum permeability of 1×10^{-7} cm/s
- 12-inch granular leachate collection system
- Geocomposite drainage layer (optional)
- 60-mil HDPE synthetic liner
- Geosynthetic Clay Liner (GCL – reinforced GCL is required on side slopes); and
- 40-mil HDPE synthetic liner
- 1-foot of recompacted clay with a maximum permeability of 1×10^{-7} cm/s

The bottom 1-foot of recompacted clay, for the GCL option may be constructed by reworking natural clay in the excavation floor. As part of the preparation for both options an underdrain system may be installed, if necessary, to relieve pore pressures that develop under the liner. Details showing the liner system are shown in **Appendix H and I**.

A composite liner will be extended up on the south side slope of Area I where additional waste is to be placed. This composite liner will consist of two feet of existing clay (top 1-foot recompacted will meet QA/QC requirements) and a 40-mil FML directly over the GCL. A drainage medium will be placed over the FML to provide for leachate collection. Details for the liner are shown on Exhibit 4, 8, and 9 of **Appendix H and Figure 3 of Appendix I**. The response to this section will be changed to state that the top foot of the recompacted clay liner along the south side slope of Area I will meet the QA/QC requirements for recompacted clay.

Appendix T contains a "Minimum QA/QC Procedures for Clay Liner and Cap Construction" and a "Construction Quality Assurance (CQA) Plan for Synthetic Bottom and Cap Liner Installation". Installation of all liners will be under the supervision of a certified professional engineer, licensed in the State of Louisiana.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

An engineering report is included as **Appendix L**. Within **Appendix L**, calculations estimating settlement, bottom heave, and leachate production are included. The leachate production calculations showed maximum leachate production rates of 50,055 gallons per day. This production is easily manageable with the 200,000 gallons of leachate storage to be available in the on-site leachate storage tanks. Any future wastewater treatment system will be designed to handle this estimated maximum production rate.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.F.4.c.

A description of the leachate collection and removal system, which shall include calculations of anticipated leachate volumes, rational for particular designs of such systems, and drawings.

Area I and Existing Area II

Original construction plans for Area I showed the northern half and the eastern portion of the southern half of Area I having been excavated with 1% slope to the south. In both of these areas, leachate, rainwater, and seepage water was collected in temporary sumps constructed in the bottom of the excavation. Water collected in these sumps was pumped to the holding facility for treatment in accordance with the state discharge permit. When each area was filled, the sump was filled with waste and abandoned.

As shown in **Exhibit 4 of Appendix H**, the western portion of the southern half of Area I was constructed with a leachate collection system consisting of leachate lines extending in an east to west direction and sloping at 0.005 ft/ft to a leachate collection manhole. The bottom of the excavation sloped toward the leachate lines at 2%. As can be seen by the referenced appendices, the construction of the leachate collection system varied in Areas I and II, but basically consisted of a network of perforated piping to facilitate leachate drainage in areas where leachate collection was required at the time of construction.

Area IIA, IIB, and III

With the phased conversion of the leachate pond to Area IIA of the landfill, leachate, contaminated runoff, condensate, and stormwater from areas of the landfill not having 24 inches of interim compacted cover will be routed via a lined ditch or force main to the leachate storage tanks, the existing pond, or future wastewater treatment system. The leachate tank system will have a minimum storage capacity of 200,000 gallons. In addition, the aforementioned contents of the leachate storage tanks are routinely removed for off-site processing, disposal or other authorized management methods.

The location of the collection/treatment/removal system for Areas IIA, IIB, and III are shown on **Figure 4 of Appendix I**. Areas IIA, IIB, and III are designed with minimum six-inch diameter perforated collection pipes placed on 200-foot centers and graded to the perimeter of the landfill at a minimum 1-percent slope. The landfill bottom is configured with a minimum 2% slope toward the collection pipes.

All areas with a composite liner system are designed to remain pumped down to less than one-foot of head above the liner system. During the construction of Areas IIA and III, clean out extensions will be provided as shown on the Area II Leachate Tie-In drawings included in **Figure 8 of Appendix I**.

As required by LAC 33:VII.711.B.4.b. i-iii, leachate will be managed as follows:

BFI WASTE SYSTEMS OF LOUISIANA, LLC

Leachate collected from all areas of the landfill will be pumped to the leachate storage tanks or future wastewater treatment system. Prior to the conversion of the leachate storage pond into disposal Area IIA, this water may be routed to the leachate storage pond.

All areas with a composite liner system are designed to remain pumped down to less than one-foot of head above the liner system. During the construction of Areas IIA and III, clean out extensions will be provided as shown on the Area II Leachate Tie-In drawings included in **Figure 8 of Appendix I**.

Leachate will be controlled, collected, treated, and removed in accordance with LAC 33:VII.711.B.4.b.i-vi as stated below.

- 1) Leachate will not be managed by allowing the leachate to be absorbed in the waste.
- 2) Infiltration of water into the waste will be minimized by daily, interim, and final cover,
- 3) The impact of leachate on the environment will be minimized by the designed leachate collection and removal system and will ensure positive removal and treatment of generated leachate.
- 4) Leachate removed will be handled in such a manner that does not adversely affect the environment.
- 5) Migration of leachate will be prevented through liners and/or other barriers.
- 6) Representative samples of raw leachate will be collected and analyzed annually for the parameters that are required for the groundwater monitoring wells in LAC 33:VII.709.E.4.

The leachate collection system will follow the minimum standards in accordance with LAC 33:VII.711.B.4.b.vii as stated below:

- 1) The leachate collection system will be located above the primary liner.
- 2) All leachate collection pipes shall be perforated, a minimum of 6 inches in diameter, and constructed of materials resistant to the leachate.
- 3) Leachate cleanout risers or manholes will be provided for each leachate collection line. The maximum length of leachate collection lines will not exceed the capabilities of the cleanout device.
- 4) A granular leachate drainage blanket or synthetic drainage blanket will be provided to trap fines and prevent waste from entering the drainage layer while allowing the passage of leachate.
- 5) The flow path of leachate on the liner surface will be no greater than 100 feet to the point of collection using the assumption the leachate flow path is perpendicular to the leachate collection pipe.
- 6) The slope on the surface of the liner toward the leachate collection lines will be a minimum of 2 percent.
- 7) The slope of all leachate collection pipes will be 1 percent.
- 8) The leachate head will be maintained in a pump-down condition such that no more than 1 foot of head shall exist above the lowest bottom elevation of the leachate collection lines.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

- 9) The equipment used to remove leachate from the collection system will be adequately sized to accommodate normal facility operations.
- 10) Trenches or swales will be provided to protect the leachate collection pipes.
- 11) The leachate collection lines shall be sloped down toward the perimeter of the unit.
- 12) An adequate thickness of gravel shall be placed on all sides of the leachate pipes.
- 13) Gravel size will be selected carefully to ensure that it is larger than the perforations in the collection pipe.
- 14) A geotextile will be used to line the base and sidewalls of all leachate collection trenches or swales. The migration of fines into the tops of the trenches shall be minimized by a properly designed, graded soil filter or geotextile.
- 15) Materials such as limestone and dolomite will not be used in the leachate collection system. However, BFI acknowledges that the administrative authority may allow alternate materials to be used in construction of the leachate collection system if BFI can demonstrate that the materials can provide equivalent or superior performance.
- 16) Leachate lines (and other engineering structures) will not penetrate the liner. BFI acknowledges that the administrative authority may waive this requirement to allow horizontal penetration of the liner only if the permit holder or applicant can demonstrate that special or unusual circumstances warrant such a waiver and that liner integrity can be protected.
- 17) An antiseep collar will be placed around the leachate line that penetrates the liner. A minimum of 3 feet of recompact clay or equivalent material shall be placed around the collar.
- 18) All leachate transfer (force-main) lines will be pressure tested prior to their use.
- 19) All control systems for pumps, valves, and meters will be designed to operate from the ground level.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.F.5.a.

The following information on plans and specifications for groundwater monitoring must be provided for Type I and II facilities:

a minimum of three piezometers or monitoring wells in the same zone must be provided in order to determine groundwater flow direction;

There is an existing groundwater monitoring system that was installed in 1982 and has been sampled since that time. This system was upgraded in 1992 and again in 1998. In 2004, additional piezometers and monitor wells were installed in the vicinity of the proposed landfill expansion. The locations of the current wells are shown on **Figure 20, Piezometers/Monitor Wells Location Map**.

Currently 11 wells in the vicinity of the existing landfill monitor the groundwater in Zone 2. Also, 11 wells in the vicinity of the existing landfill monitor the groundwater in Zone 3. These 22 wells are sampled semi-annually in accordance with the Groundwater Sampling and Analysis Plan presented in **Appendix U**.

A slurry wall is constructed around the perimeter of the landfill. The slurry wall consists of a clay-bentonite mixture that has a maximum permeability of 1×10^{-7} cm/sec, and is approximately 3 feet wide with an average depth of 45 feet. The slurry wall surrounding the existing landfill inhibits groundwater movement. The slurry wall, which was installed in 1991, isolates Zone 2 and extends into portions of Zone 3. Interpretation of the hydraulic gradient is a result of extrapolating groundwater contours across the slurry wall; two interior wells provide some basis for extrapolation. A slurry wall will be extended to Area III. A QA/QC plan for the construction of the slurry wall is included as **Appendix V**. See **Appendix H (Exhibit 4 and Exhibit 7) and Appendix I (Figures 2-7)** for dimensions and drawings of the slurry wall.

Potentiometric maps (**Figures 11 and 12**) indicate that the groundwater gradient for Zone 2 is typically inward; thus, all wells in Zone 2 are positioned upgradient of the existing landfill. Referring to the potentiometric maps for Zone 3, (**Figures 13 and 14**), the groundwater gradient is mostly northerly but appears to vary somewhat. Therefore, the wells designated as upgradient and downgradient in Zone 3 vary between sampling events.

Further confirmation of the groundwater flow direction will be performed with the use of newly-installed piezometers and wells in the vicinity of the proposed landfill expansion area.

The piezometer/monitor well cross sections are included as **Appendix W** and summarized on **Table 1**. As shown on these cross section diagrams, the wells are constructed of 2- or 4-inch diameter schedule 40 polyvinylchloride (PVC) pipe. Each well includes a 5- to 10-foot screened interval constructed of 2- or 4-inch diameter schedule 40 PVC with a slot size of 0.010 inches.

The placement and construction of these wells were selected to detect contamination from the facility. Therefore, the wells were placed as close to the landfill as practicable and

BFI WASTE SYSTEMS OF LOUISIANA, LLC

screened in the stratum most likely to be affected by contaminant migration. Note that Wells W-13, W-14, and W-18 and piezometers CDM-11 will be plugged and abandoned immediately prior to construction of Area III.

BFI will operate and maintain these wells so that they perform to design specifications throughout the life of the monitoring program.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.F.5.b

for groundwater monitoring wells, cross-sections illustrating construction of wells, a scaled map indicating well locations and the relevant point of compliance, and pertinent data on each well, presented in tabular form, including drilled depth, the depth to which the well is cased, screen interval, slot size, elevations of the top and bottom of the screen, casing size, type of grout, ground surface elevation, etc.;

Cross-sections illustrating well construction details and pertinent data on each well, presented in tabular form, including drilled depth, the depth to which the monitoring well is cased, screen interval, slot size, elevations of the top and bottom of the screen, casing size, ground surface elevation, etc., are included as monitoring well cross-sections, **Appendix W**, and **Table 1**.

The relevant points of compliance in Zones 2 and 3 is presented on **Figure 20**. These compliance points encompassing the existing landfill is the vertical surface of the landfill's northern exterior boundary (outside the slurry wall) and extends down into Zones 2 and 3.

These compliance points are located on property owned and controlled by BFI and are shown on **Figure 20**. These compliance points were selected based on the required factors as detailed in LAC 33:VII.709.E.1.a. These eight factors are provided in the paragraphs that follow:

1. Hydrological characteristics of the facility and the surrounding land;

Based on the results of soil borings, the generalized shallow subsurface geology consists primarily of low-permeability clays with occasional pockets and seams of silts and fine sand. Soil Cross Sections, **Appendix M**, and the Isometric Soil Profile, **Figure 9**, were constructed based on these results. The soil boring logs are included as **Appendix N**. The wells were and will be installed based on the results of these soil borings.

2. Volume and physical and chemical characteristics of the leachate;

Calculations on volume of leachate are included in the Engineering Analysis, **Appendix L**.

3. The quality and direction of flow of groundwater in the uppermost aquifer;

Based on semi-annual groundwater sampling, the local groundwater in the shallow zones underlying the landfill is not contaminated. Information regarding direction of flow is provided in LAC 33:VII.521.E.1.

4. The proximity and withdrawal rate of the groundwater users;

The location of groundwater wells in the proximity of the landfill facility is given in **Figure 4**.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

5. Availability of alternative drinking water supplies;

It is not expected that the shallow zones would be used for a source of drinking water due to the low recharge rate. Better quality waters and greater quantities exist in deeper aquifers.

6. Existing quality of the groundwater, including other sources of contamination and their cumulative impacts on the groundwater, and whether the groundwater is currently used or reasonably expected to be used for drinking water;

Semi-annual groundwater sampling results show that groundwater in the shallow zones underlying the landfill is not contaminated. No other sources of potential groundwater contamination are in the vicinity of the landfill. The groundwater in the shallow zones underlying the landfill is not currently used or reasonably expected to be used for drinking water. Groundwater usage for public supply, industrial, and/or irrigation is primarily in the NORCO and Gonzales Aquifers.

7. Public health, safety, and welfare effects; and

BFI anticipates no adverse impact on the public health, safety, or welfare due to operation of the landfill. However, the groundwater monitoring system is designed to detect potential groundwater contamination at the earliest possible occurrence.

8. Practicable capability of the owner or operator.

There are no known factors prohibiting BFI's practicable capability of selecting the relevant point(s) of compliance.

Currently, the existing landfill contains a groundwater monitoring system comprised of 22 groundwater monitor wells. In addition, piezometers and monitor wells were installed in 2004 in the vicinity of the proposed landfill expansion.

Well construction diagrams of the existing wells are included in **Appendix W**. Each of the wells is or will be vented to the atmosphere and sealed with concrete to prevent surface contamination. The wells are or will be screened and located to insure that only one water-bearing unit is sampled per well. Each well is or will be protected by a steel casing and locked to prevent tampering.

All wells have or will have protective casings with locking covers and a secure locking device in place, guard posts firmly anchored outside the well slab, but not in contact with the slab, and a screen length not more than 10 feet. In addition, these wells allow or will allow at least 3 inches between the well casing and the borehole wall.

Each well has or will have a plate permanently affixed to each well's protective casing to prominently display each well's identification number, identification as upgradient or downgradient, elevation of top of well casing in relation to mean sea level or equivalent, screen depth in relation to mean sea level or equivalent, and

BFI WASTE SYSTEMS OF LOUISIANA, LLC

date of well installation. Information regarding well repairs is maintained by the site groundwater contact person.

BFI will obtain approval from the LDEQ prior to the construction of any future monitor wells associated with the facility. Within 90 days after construction of any monitor well associated with the facility, BFI will submit well-completion details to verify that the wells were constructed according to the approved specifications and to document construction procedures. The well-completion details will include daily field notes documenting construction procedures and any unusual occurrences such as grout loss, *etc.*; the boring log for each well including surface elevation(s) with respect to mean sea level; and as-built diagrams for each well showing all pertinent features such as elevation of reference point for measuring groundwater levels, screen interval, and ground surface. If features change from the LDEQ-approved plans, then a permit modification request will be submitted in accordance with LAC 33:VII.517.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.F.5.c

a groundwater monitoring program including a sampling and analysis plan that includes consistent sampling and analysis procedures that ensure that monitoring results provide reliable indications of groundwater quality;

BFI's Groundwater Sampling and Analysis Plan (**Appendix U**) includes consistent sampling and analysis procedures that ensure that monitoring results provide reliable indications of groundwater at the background and downgradient well locations.

Table 1 of this plan identifies the monitor wells (well #), monitored zone (Zone 2 or Zone 3), screened intervals, and well designation (as upgradient or downgradient), *etc.* The analytical data will be evaluated by intrawell statistical comparisons, which is consistent with the analysis currently used for the groundwater monitoring program.

The Groundwater Sampling and Analysis Plan will be updated as needed (plugging of wells, installation of wells, *etc.*).

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.F.5.d

for an existing facility, all data on samples taken from monitoring wells in place at the time of the permit application must be included. (If this data exists in the Solid Waste Division records, the administrative authority may allow references to the data in the permit application.) For an existing facility with no wells, groundwater data shall be submitted within 90 days after the installation of monitoring wells. For a new facility, groundwater data (one sampling event) shall be submitted before waste is accepted;

Data from wells have been submitted to the Permits Division of the LDEQ. For the groundwater monitoring wells installed in 2004 in the vicinity of the landfill expansion area and in the event that additional groundwater monitoring parameters are added to those already listed or if new monitoring wells are installed, BFI will complete an initial sampling event. The initial sampling event will be a minimum of four (4) independent samples collected for each parameter. These samples will be collected quarterly over a period of one (1) year in order to reflect seasonal variations in groundwater quality. The fact is noted that some statistical methods require more than four (4) independent samples for the method to be valid.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.F.5.e**a plan for detecting, reporting, and verifying changes in groundwater; and**

The Groundwater Sampling and Analysis Plan, which includes procedures for detecting, reporting, and verifying changes in groundwater, is included as **Appendix U**.

BFI acknowledges that final approval for the statistical method chosen will be granted by LDEQ based on the technical merit and appropriateness of the method.

If deemed necessary by the LDEQ, BFI will submit revised statistical method(s) to the LDEQ as a permit modification within 90 days after completion of the initial sampling event, or within 90 days of the date of approval of the final permit being issued if the existing sampling data is considered the initial sampling event. This permit modification will include the data collected from the initial sampling event, the proposed statistical method chosen for each parameter, and justification for choosing the proposed statistical method(s). This justification will provide verification of the underlying statistical assumptions and demonstrate that the statistical method chosen for each individual parameter is the most appropriate method based on the analytical data-set that was generated from the initial sampling event.

BFI will conduct an assessment monitoring program at the facility when significant increases are determined, according to LAC 33:VII.709.E.3.f.i-iv, for one or more of the parameters or constituents sampled and analyzed during the detection monitoring program. The assessment monitoring parameters or constituents will consist of the detection monitoring parameters or constituents.

Within 90 days after triggering an assessment monitoring program, BFI will sample and analyze the groundwater at all wells for all the assessment monitoring parameters or constituents.

If after triggering an assessment monitoring program and assessment monitoring parameters or constituents are detected at concentrations significantly different from background in the re-sampling event, BFI will, within 14 days of the determination, submit a report to LDEQ identifying the assessment monitoring parameters or constituents that are statistically different from background concentrations. BFI will also notify all persons who own land or reside on the land that directly overlies any part of the plume of contamination if contaminants have migrated off-site as indicated by the sampling of the wells according to LAC 33:VII.709.E.8.c.i.

BFI will, upon consultation with and approval of LDEQ, implement any interim measures necessary to ensure the protection of human health and the environment. The interim measures will, to the greatest extent practicable, be consistent with the objectives of and contribute to the performance of any remedy that may be required pursuant to LAC 33:VII.709.E.6.

BFI will consider the following factors in determining whether interim measures are necessary: time required to develop and implement a final remedy; actual or potential exposure of nearby populations or environmental receptors to hazardous parameters or constituents; actual or potential contamination of drinking water supplies or sensitive ecosystems; further degradation of the groundwater that may occur if remedial action is

BFI WASTE SYSTEMS OF LOUISIANA, LLC

not initiated expeditiously; weather conditions that may cause hazardous parameters or constituents to migrate or be released; risks of fire or explosion, or potential for exposure to hazardous parameters or constituents as a result of an accident or failure of a container or handling system; and other situations that may pose threats to human health and the environment.

If a corrective action plan is deemed necessary, BFI will perform corrective action at the facility in accordance with LAC 33:VII.709.E.9.

BFI will, within 270 days after the submittal of the assessment plan, submit to the LDEQ four bound copies (8½ by 11 inches) of a corrective action plan to remediate the groundwater. The corrective action plan will describe the selected remedy and will also include a corrective action groundwater monitoring program, that meets the requirements of an assessment monitoring program outlined in LAC 33:VII.709.E.8, which indicates the effectiveness of the corrective action remedy. In addition, the corrective action plan will include a schedule for initiating and completing remedial activities.

After a corrective action plan submitted by BFI has been approved by the LDEQ based on the schedule for initiating and completing remedial activities, the facility will implement a corrective action program to remediate the groundwater.

BFI will, upon completion of the remedy associated with a corrective action plan, submit within 14 days to the LDEQ a certification that the remedy has been completed in compliance with the requirements of LAC 33:VII.709.E.7.h. The certification will be signed by the responsible party representing the facility and submitted to LDEQ for approval.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.F.5.f

the method for plugging and abandonment of groundwater monitoring systems.

BFI will comply with "Water Well Rules and Regulations, State of Louisiana" (LAC 70:XIII), as adopted by the LDOTD, Water Resources Section, for all plugging and abandonment of wells and holes including observation wells, monitor wells, piezometer wells, leak detection wells, assessment wells, recovery wells, abandoned pilot holes, test holes, and geotechnical boreholes.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.F.6

The facility plans and specifications for Type I and II landfills and surface impoundments (surface impoundments with on-site closure and a potential to produce gases) must provide a gas collection and treatment or removal system.

A gas collection system has been approved and installed in Area I and portions of Area II. This system will consist of gas collection pipes, wells, header pipes, and a condensate handling system, along with a flare system. The gas collection system for the remainder of Areas II, IIA, IIB, and III will consist of the same basic elements as the existing system installed in Area I and portions of Area II. A plan view of the existing system and the proposed layout of the expanded system is shown in **Appendix I**.

The gas collection system will limit methane gas to lower explosive limits at the facility boundary and to 25 percent of the lower explosive limits in facility buildings. Sampling protocol, chain of custody, and test methods are established for the gas collection system.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.G.1.a

Facility Administrative Procedures. Standards governing facility administrative procedures are contained in LAC 33:VII.711.C (Type I and II landfills), LAC 33:VII.713.C (Type I and II surface impoundments), LCA 33:VII.715.C (Type III construction and demolition debris and woodwaste landfills), LAC 33:VII.723.B (Type III composting facilities), and LAC 33:VII.725.B (Type III separation facilities).

The following information on administrative procedures is required for all facilities:

recordkeeping system; types of records to be kept; and the use of records by management to control operations;

Colonial Landfill will submit an annual report to the Office of Management and Finance, Financial Services Division indicating quantities and types of solid waste (expressed in wet-weight tons per year), received from in-state generators during the reporting period. The seven digit waste code assigned to industrial wastes will be reported on the annual report form for wastes received. The annual report will also indicate the estimated remaining permitted capacity at the facility as of the end of the reporting period (expressed in wet-weight tons). All calculations used to determine the amounts of solid waste received for disposal during the annual reporting period and to determine remaining capacity will be submitted to the administrative authority. This form will be obtained from the Office of Management and Finance, Financial Services Division or through the department's website.

Colonial Landfill will maintain at the facility all records specified in this application necessary for the effective management of the facility and for preparing the required reports. These records will be maintained for the life of the facility and will be kept on file for at least three years after closure.

Colonial Landfill will maintain records of transporters transporting waste for disposal at the facility. The records shall include the date of receipt of shipments of waste and the transporter's solid waste identification number issued by the administrative authority.

Records kept on site for the facility include:

- Copies of the current Louisiana solid waste rules and regulations
- Standard permit
- Permit application
- Permit modifications
- Certified field notes for construction
- Operator training programs
- Daily log

BFI WASTE SYSTEMS OF LOUISIANA, LLC

- QA/QC records
- Inspections by the permit holder or operator including but not limited to inspections to detect incoming hazardous waste loads
- Board of Certification and Training for Solid Waste Disposal System Operator Certificates (if applicable)
- Records demonstrating that liners, leachate-control systems, and leak-detection and cover systems are constructed or installed in accordance with appropriate quality assurance procedures
- Records on the leachate volume and results of the leachate sampling
- Monitoring, testing, or analytical data
- Any other applicable or required data deemed necessary by the administrative authority
- Records on groundwater sampling results
- Post-closure monitoring reports
- Copies of all documents received from and submitted to the department

The reporting period for the disposer annual report will be from July 1 through June 30, commencing July 1, 1992, and terminating upon closure of the facility in accordance with the permit.

Annual reports shall be submitted to the administrative authority by August 1 of each reporting year.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.G.1.b

An estimate of the minimum personnel, listed by general job classification, required to operate the facility; and

Colonial Landfill will have the personnel necessary to achieve the operational requirements of the facility. All personnel involved in waste handling at the facility will be adequately trained in procedures to recognize and exclude the receipt or disposal of hazardous waste and PCB waste.

The operation of Colonial Landfill will be controlled and operated by the following key personnel per shift:

Class B Operator (1)**General job description:**

- Records daily inspection forms
- Operates equipment including compactor, excavator, bulldozer, forklift, front end loader, and other equipment
- Trains or assists training of other employees
- Inspects equipment

Equipment Operator (1)**General job description:**

- Operates equipment such as a compactor, excavator, bulldozer, forklift, front end loader, and other equipment
- Performs minor service to equipment
- Monitors for signs of unacceptable waste
- Performs inspections of equipment

Scale Operator (1)**General job description:**

- Obtains information regarding materials entering the landfill to properly track the total amount of waste entering the landfill
- Accepts or rejects loads based on content and suggests possible alternatives based on personal disposal knowledge, special waste training, and type of wastes

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.G.1.c

Maximum days of operation per week and per facility operating day (maximum hours of operation within a 24-hour period).

The normal operating hours of the landfill are as follows:

Landfill: Monday – Sunday 4:00am – 12:00am
Solidification Building: 24 hours/day; 7 days/week

The maximum days of operation for the receipt of waste is seven days per week. The maximum hours of operation within a 24-hour period is 20 hours per day. The solidification basin may operate 24 hours per day, 7 days per week.

The regional office shall be notified when the facility operates outside of normal working hours.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.G.2

Administrative procedures for Type II facilities shall include the number of facility operators certified by the Louisiana Solid Waste Operator Certification and Training Program (R.S. 37:3151 et seq.).

Colonial Landfill will have the certified operators employed at the facility, as required by the LAC 46:XXIII. Operator certificates will be prominently displayed at the facility. The Board of Certification and Training for Solid Waste Disposal System Operators and the Office of Environmental Services, Permits Division will be notified within 30 days of any changes in the employment status of certified operators.

Colonial Landfill will maintain a Class A Operator in charge of the facility. The facility shall have a Class B operator when receiving waste and the landfill gate shall be manned when waste enters the facility to ensure that waste is checked in and inspected in accordance with the Quality Assurance/Quality Control Plan. A Class B Operator will be on-site at the landfill at all waste disposal times.

The site will maintain a ratio of one (1) Class C Operator to every ten (10) landfill employees at the site.

Industrial process waste that may be received during non-operating hours will only be delivered to the mixing basin area by BFI approved personnel. However, this waste will not be processed or disposed without certified operators being present.

BFI WASTE SYSTEMS OF LOUISIANA, LLC**LAC 33:VII.521.H.1.a**

Facility Operational Plans. Standards governing facility operational plans are contained in LAC 33:VII.711.D (Type I and II landfills), LAC 33:VII.713.D (Type I and II surface impoundments), LAC 33:VII.715.D (Type I and II landfarms), LAC 33:VII.717.G (Type I-A and II-A facilities), LAC 33:VII.721.C (Type III construction and demolition debris and woodwaste landfills), LAC 33:VII.723.C (Type III composting facilities), and LAC 33:VII.725.C (Type III separation facilities).

The following information on operational plans is required for all facilities: characteristics of industrial wastes generated on-site), maximum quantities of wastes per year, and sources of waste to be processed or disposed of at the facility;

Other than office waste and general waste from the maintenance area, waste comes to the site from the State of Louisiana in the estimated quantities shown below.

WASTE TYPES	<u>MAXIMUM ANNUAL</u> TONNAGE ⁽¹⁾
Residential	520,000
Industrial	520,000
Commercial	208,000
Other	62,400
TOTAL	1,310,400

¹These numbers may increase in future years in conjunction with anticipated population growth in the vicinity of the landfill.

Leachate, condensate, and storm water from areas of the landfill not having 24 inches of interim compacted cover or HDPE membrane liner (minimum 30-mil) and condensate recovered from the landfill will be sent to the leachate storage tanks. Prior to the conversion of the leachate storage pond into disposal Area IIA, this water may be routed to the leachate storage pond or wastewater treatment system. Leachate generation varies.

Industrial wastes are profiled prior to receipt. All industrial wastes as defined by LAC 33:VII.115 will have an assigned waste code. Quantities will be reported on the annual report form submitted to LDEQ.

See **Appendix K** for the Random Inspection portion of the facility's QA/QC Plan.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.H.1.b

Waste-handling procedures from entry to final disposition, which could include shipment of recovered materials to a user;

The waste types previously described above in 521.H.1.a will be handled in the following manner:

Record keeping is maintained to manage the operation and to prepare the required reports in accordance with administrative requirements of the state. Upon arrival at the site, all vehicles with incoming wastes are instructed by signage to stop at the facility gatehouse. The gatehouse is equipped with a central control and record keeping system for tabulating information on the wastes. Utilizing scales, the system records the quantity (by wet-weight tonnage); sources (whether the wastes were generated in-state or out-of-state and, if it is industrial solid waste, its origin); and types of incoming wastes (*i.e.*, industrial, commercial, residential). Industrial waste will be compared to the pre-acceptance information and checked for conformity. In the event of scale malfunction, the amount of waste is estimated and recorded in cubic yards, and the scale is repaired as soon as practicable. Quantities delivered to the site via personal or commercial vehicles (*e.g.*, pick-up trucks) are recorded in cubic yards and converted to tonnage according to the appropriate conversion factor for different types of waste streams (*e.g.* roofing shingles, tree debris). The conversion factors for the different types of waste streams are kept on file at the facility.

The waste delivery and recording system, in conjunction with the facility security system, allow only limited and controlled access to the disposal area. The controlled and documented entry along with the random inspection of incoming waste loads will reasonably ensure exclusion of prohibited wastes. Facility personnel will continue to receive training in regulatory compliance that provides a review of applicable state regulations with emphasis on the facility solid waste permit. Certified facility operators will continue to receive additional training on regulatory compliance during scheduled meetings conducted by the Board of Certification and Training for Solid Waste Disposal System Operators and the LDEQ Permits Division.

Facility personnel will randomly inspect the load to verify that the waste has the physical appearance indicated on the previously approved documents and conforms to the type of waste accepted (*e.g.* industrial, commercial, or residential). Landfill personnel will subsequently make an entry in the site's record keeping system indicating the generator, waste name, vehicle number, time, date, volume, and location of deposited waste in the landfill by referencing the site grid coordinate system. Random inspections, for the purpose of hazardous waste exclusion, will be conducted near or adjacent to the working face within the certified disposal area over a clearly marked and properly bermed area that has received interim cover prior to placement in the working face of the landfill. The physical verification may entail obtaining a sample of the waste from each truck entering the site.

Commercial collection vehicles are not allowed to proceed into the landfill until authorized. The truck is logged in and directed to the unloading area. For industrial wastes, the

BFI WASTE SYSTEMS OF LOUISIANA, LLC

receiving ticket is completed noting the location where the wastes are deposited. During unloading, the waste is visually monitored by the operator. If any potentially hazardous waste is detected, the vehicle is not permitted to leave the site until the nature of the waste is resolved.

Small non-commercial vehicles are typically permitted to dispose of waste in containers near the entrance gate to avoid traveling into the tipping area. This area is identified as the *non-commercial small vehicle container area*. These containers when filled are hauled to the tipping area for disposal. The location of the *non-commercial small vehicle container area* may be changed as needed to accommodate facility operations.

Vehicles entering the facility are weighed or measured prior to entering the disposal area. Upon completion of acceptance procedures described in the QA/QC Program for Waste Acceptance, the vehicles are directed to either the active disposal area or the non-commercial small vehicle container area. Haulers not familiar with the facility are provided with verbal instructions and their loads are assessed for the specific acceptance requirements. Signs instruct drivers as to speed limits, site precautions, movement of traffic, and directions to the working face of the active landfill cell to facilitate uniform traffic flow.

Industrial process solid wastes that require improvements in their physical characteristics for ease in handling are mixed with a solidification agent or other non-hazardous wastes (e.g. fly ash, kiln dust or similar products). The handling, mixing and details of disposal methods are evaluated by physical testing. Solid wastes that are difficult to compact may require mixing with sand, silt, clay, or other material. The proper mix is determined by physical testing in the laboratory and/or by field demonstration.

Refuse delivered to the site in loose form and containing items such as appliances or bulky containers may be segregated, recycled or reused. Open burning of refuse will not be done at Colonial Landfill as a waste handling method. No solid waste shall be deposited in standing water, and all waste will be deposited in the smallest practical area, spread and compacted in layers approximately two feet thick, or, if baled, will be stacked and covered daily.

The waste acceptance and testing procedures for receiving domestic sewage sludge, industrial solid waste, incinerator ash or non-hazardous petroleum contaminated media and debris generated by underground storage tank corrective actions have additional waste acceptance requirements under LAC 33:VII. Solid Waste Regulations, including Section 521, 709, and 711. The program specifically provides pre-acceptance procedures to determine the acceptability of a waste pursuant to facility permit conditions, operational capabilities, and state and federal regulations.

Waste receptacles are provided for the general public at the convenience center. The public convenience center is located along the access road, as shown on the Facility Layout Plan, Figure 5. Persons entering the landfill must first check in at the gate house where they are directed to proceed to the public convenience center. Landfill personnel empty the receptacles into the landfill on a daily basis.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

Filling within a cell proceeds in approximately 20-foot-high by 150-foot-wide sections, and, in general, begins on the high end and proceeds toward the opposite end of the cell, which is lower in elevation. The development cycle of each cell is to reach approximate final grades within a cell prior to filling within the next cell. This may be highly dependent on site and weather conditions at the time these elevations are reached. The unloading area is maintained to facilitate side-by-side unloading when practical, without undue delay due to equipment operations. As the permitted height is attained, interim cover and interim compacted cover is placed over the appropriate sections of the disposal area.

Detailed procedures for the disposal of waste are found in the Quality Assurance/Control Plan for Special Waste and Landfill Gate found in **Appendix K**.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.H.1.c**Minimum equipment to be furnished at the facility;**

The equipment required to operate a landfill is contingent on waste disposal volumes, in-situ conditions of soil, length of haul for cover material, weather conditions, *etc.* To handle operational changes, additional equipment may be leased. Sub-contractors may be hired to supply equipment and manpower to assist during peak work times.

The following is a list of heavy equipment maintained for the operation of the facility:

- 1 Compactor
- 1 Dirt Mover
- 2 Dozers
- 1 Grader
- 2 Excavators

Various pieces of support equipment such as pumps, portable lights, *etc.*, as referenced in other portions of the permit application and appurtenances, will be supplied as the need arises.

Replacement equipment will be secured in the event of breakdown or needed repairs.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.H.1.d**Plan to segregate wastes, if applicable;**

There are no plans to segregate wastes other than those wastes identified in LAC 33:VII.521.H.1.b. However, industrial wastes that require special mixing or handling may be disposed in designated excavation areas. These excavations (trenches) will be incorporated within active areas of disposal. Specific locations will be identified and referenced on the manifest at the time the waste is delivered to the facility.

White goods will not be disposed of at this facility. However, as long as BFI can find a recycler who is willing to accept white goods, BFI will accept white goods for storage in special white goods containers located at the public convenience center. White goods will be removed off-site every 30 days. If white goods are accepted, the facility shall maintain a log of dates and volumes of white goods removed.

Tree limbs, leaves, clippings, construction material, woodwaste, and similar type waste will not be segregated but will be treated as normal waste and disposed of in the landfill.

Incidental whole waste tires will not be disposed of in the landfill. Whole waste tires will be handled in accordance with LAC 33:VII. Subpart 2. Chapter 105.

Detailed procedures for special waste are found in the Quality Assurance/Control Plan for Special Waste and Landfill Gate found in **Appendix K**.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.H.1.e

Procedures planned in case of breakdowns, inclement weather, and other abnormal conditions (including detailed plans for wet-weather access and operations);

Procedures planned for breakdowns:

- Repair equipment breakdowns on-site
- Rent equipment and/or employ contractors
- Transfer equipment from other landfill sites

An all-weather access road will be constructed at the site, from the entrance to the active fill area, and will provide for site access during inclement weather. Cover material will be stockpiled near the working face to allow for continued operation during inclement weather. Guidelines for emergency procedures in the event of a hurricane, tornado, as well as accidents, fires, explosions, release of known/suspected hazardous waste to the air, soil, or surface water, and general operational safety, etc. are provided in the Safety-Emergency Contingency Plan (**Appendix X**).

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.H.1.f

Procedures, equipment and contingency plans for protecting employees and the general public from accidents, fires, explosions, etc., and provisions for emergency care should an accident occur (including proximity to a hospital, fire and emergency services, and training programs); and

Safety requirements and provisions for emergency care are included in the Safety-Emergency-Contingency Plan found in **Appendix X**. Training sessions concerning procedures for this plan will be conducted annually. A copy of the training program is included in **Appendix Y**.

The employees are trained and experienced with the operation of the equipment and the vehicles. Telephones are available at the site to report any accidents, fires, or explosions to the hospitals, fire departments, and other related Parish and State agencies. Emergency telephone numbers will be posted near each telephone.

No trespassing is permitted, and only approved transporters or official personnel are allowed on the site.

The site is located off LA Hwy. 70 and is conveniently accessible. The Sorrento Fire Department is approximately 4 miles from the site. The police offices and hospitals in Gonzales are located approximately 8 miles from the facility.

The contingency plan will be filed with the local fire department and the closest hospital or clinic, and the plans will be updated annually when implementation demonstrates that a revision is needed.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.H.1.g**Provisions for controlling vectors, dust, litter and odors.****Vectors**

Daily and final covers will provide an effective means for controlling vectors and odors. The daily cover material and interim materials used on-site will minimize vector-breeding areas and animal attraction by controlling fly, mosquito, and other insect emergence, rodent burrowing for food and harborage, and bird and animal attraction. In addition, waste will be deposited under facility supervision in the smallest practicable area and compacted. Although not anticipated, additional vector control measures will be taken, as necessary. A schedule of the type and frequency of vector control measures to be used will be submitted to the Office of Environmental Services, Permits Division for approval prior to use. Any pesticides used will be applied in accordance with applicable State and Federal laws.

Litter

Littering at the facility and immediate surroundings will be minimized by properly directing traffic and handling waste. Waste will be moved and compacted by a dozer to minimize the possibility of waste being spread through wind or other incoming vehicles.

Dust

On-site dust will be controlled by watering.

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LAC 33:VII.521.H.2.a.

The following information on operational plans is required for Type I and II facilities:

A comprehensive operational plan describing the total operation, including (but not limited to) inspection of incoming waste to ensure that only permitted wastes are accepted (Type II landfills must provide a plan for random inspection of incoming waste loads to ensure that hazardous wastes or regulated PCB wastes are not disposed of in the facility.); traffic control; support facilities; equipment operation; personnel involvement; and day-to-day activities. A quality-assurance/quality-control [QA/QC] plan shall be provided for facilities receiving industrial waste; domestic-sewage sludge; incinerator ash; friable asbestos; nonhazardous petroleum-contaminated media; and debris generated from underground storage tanks [UST], corrective action, or other special wastes as determined by the administrative authority. The QA/QC plan shall include (but shall not be limited to) the necessary methodologies; analytical personnel; preacceptance and delivery restrictions; and appropriate responsibilities of the generator, transporter, processor, and disposer. The QA/QC plan shall ensure that only permitted, nonhazardous wastes are accepted;

A Comprehensive Operational Plan is located in **Appendix Z**.

Incoming Waste Inspections

A QA/QC Plan for Special Waste Acceptance and Landfill Gate is provided in **Appendix K** of this application and will be maintained to assure that all incoming non-hazardous wastes are in conformity with the Solid Waste Rules and Regulations.

The receipt of regulated hazardous waste and PCB waste is strictly prohibited and prevented. A Random Inspection Plan for incoming loads is included as part of **Appendix K**. This plan includes procedures to detect and prevent the disposal of regulated hazardous waste or PCB waste. Records of these inspections will be recorded.

Facility Limitations

Bulk or non-containerized liquids will not be placed in the landfill unless the waste is household waste. Containerized liquid will not be placed in the landfill, unless the container is similar to household type containers, is designed to hold liquids for use other than storage, or is household waste. Colonial Landfill utilizes mixing basins to solidify liquid waste.

Specific limitations require that infectious waste from hospitals or clinics must have been incinerated in a properly functioning pathological unit, and be properly packaged and identified, and be certified by the Department of Health and Human Resources to be accepted in the landfill area.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

Livestock will not be allowed to graze in operating areas of the facility, and open burning will not be practiced.

Open burning of solid waste will not be practiced at the facility.

Solid waste will not be deposited in standing water. Wet weather areas can be utilized, if necessary, to prevent this situation from occurring.

Disposal Operations

Wastes will be disposed in lifts. As a lift moves far enough along to allow an additional lift to begin at the top of the previous lift, the operation will be moved to the top of the lower lift and the process repeated until several lifts exist and a stair-type of configuration is developed. Waste will be deposited under facility supervision in the smallest practicable area, spread in layers, and compacted to approximately 2 feet thick, or, if baled, stacked.

At the end of each operating day (every 24 hours), daily cover will be applied to the working face. The maximum hours of operation are 20 hours a day. Therefore, cover will be applied at a minimum daily (every 24 hours). Interim cover, interim compacted cover, or HDPE flexible membrane liner will be applied on all operating areas of the facility in accordance with LAC 33:VII.711.B.2.e. If HDPE liner is used as interim compacted cover, the liner material will be installed in the following manner; it will be rolled out over the waste, overlapped, and secured. The perimeter of the HDPE liner will be anchored (in trenches backfilled with soil or the equivalent) to secure the interim compacted cover in place. Equipment that could potentially damage the HDPE liner will not be allowed directly onto the surface of an area with completed interim compacted cover. If vehicular traffic in these areas is necessary, earthen materials will be used to construct roads across HDPE-lined areas for accessibility. Any damage to the HDPE interim compacted cover noted during site inspections will be repaired as soon as practicable. The HDPE liner will be destroyed in-place or removed when operations resume in those areas that have received interim compacted cover.

Solid waste hauling units will enter the landfill through the gatehouse where the loads will be recorded. If the waste is industrial in nature, it will be checked in accordance with the QA/QC for Special Waste Acceptance and Landfill Gate found in Appendix K.

Contingency and Training Plans

A Contingency Plan outlining facility operations and emergency procedures to be followed in case of an accident, fire, explosion, or other emergencies can be found in Appendix V and will be updated annually. The contingency plan will be filed with the local fire department and the closest hospital. These plans will be updated annually when implementation demonstrates that a revision is necessary. Training sessions covering procedures of the plan will be conducted annually for all applicable employees working at the facility. A copy of the Training Plan is located in **Appendix Y**.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.H.2.b**Salvaging procedures and control, if applicable; and**

Salvaging will not be allowed at the landfill. Salvaging will be controlled by limiting access to the disposal area. Only approved transporters will be allowed in the tipping area. Landfill personnel will monitor disposal activities to ensure that salvaging does not occur.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.H.2.c**Scavenging control.**

Scavenging will not be permitted at the facility. The only access to the site is through the service road that is controlled by a gate. The gate is locked when the facility is not in operation. A notice stating that scavenging is prohibited will be posted at the gate.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.H.3

The following information on operational plans is required for Type I and II landfarms:

Items to be submitted regardless of land use:

a detailed analysis of waste, including (but not limited to) pH, phosphorus, nitrogen, potassium, sodium, calcium, magnesium, sodium-adsorption ration, and total metals (as listed in LAC 33:VII.715.D.3.b);

soil classification, cation-exchange capacity, organic matter, content in soil, soil pH, nitrogen, phosphorus, metals (as listed in LAC 33:VII.715.D.3.b), salts, sodium, calcium, magnesium, sodium-adsorption ratio, and PCB concentrations of the treatment zone;

annual application rate (dry tons per acre) and weekly hydraulic loading (inches per acre); and

an evaluation of the potential for nitrogen to enter the groundwater.

Items to be submitted in order for landfarms to be used for food-chain cropland:

a description of the pathogen-reduction method for septage, domestic sewage sludges, and other sludges subject to pathogen production;

crops to be grown and the dates for planting;

PCB concentrations in waste;

annual application rates of cadmium and PCBs; and

cumulative applications of cadmium and PCBs.

Items to be submitted for landfarms to be used for nonfood-chain purposes:

description of the pathogen-reduction method in septage, domestic sewage sludges, and other sludges subject to pathogen production; and

a description of control of public and livestock access..

Colonial Landfill is not a Type I or II landfarm; therefore, this section is not applicable.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.H.4

The following information on operational plans is required for Type I-A and II-A incinerator waste-handling facilities and refuse-derived energy facilities:

A description of the method used to handle process waters and other water discharges which are subject to NPDES permit and state water discharge permit requirements and regulations; and

A plan for the disposal and periodic testing of ash (all ash and residue must be disposed of in a permitted facility).

Colonial Landfill is not a Type I-A or II-A incinerator-waste handling facility or refuse-derived energy facility; therefore, this section does not apply.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.H.5

The following information on operational plans is required for Type I-A and II-A refuse-derived fuel facilities and Type III separation and composting facilities:

A description of the testing to be performed on the fuel or compost; and

A description of the uses for and the types of fuel/compost to be produced.

Colonial Landfill is not a Type I-A or II-A refuse-derived fuel facility, or a Type II separation or composting facility; therefore, this section does not apply.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.H.6

The operational plans for Type I-A and II-A refuse-derived fuel facilities and Type III separation and composting facilities must include a description of marketing procedures and control.

Colonial Landfill is not a Type I-A or II-A refuse-derived fuel facility or Type II separation or composting facility; therefore, this section does not apply.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.H.7

The operational plans for Type I and II facilities receiving waste within a potential to produce gases must include a comprehensive air monitoring plan.

Gas monitoring procedures for monitoring methane gas can be found in **Appendix AA**. This plan contains consistent sampling and analysis procedures to ensure that results are reliable indicators of air quality.

If methane gas levels exceed the regulatory limits, BFI will follow the requirements specified in LAC 33:VII.711.D.3.a.iii.

In addition, Colonial Landfill maintains gas extraction laterals, extraction wells, and header pipe that are tied to a blower and gas flare. This extraction system will be expanded as needed to control gas at the site.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.I.1.a

Implementation Plan. Standards governing implementation plans are contained in LAC 33:VII.709.D (Type I and II facilities), LCA 33:VII.717.H (Type I-A and II-A facilities), and LAC 33:VII.719.E (Type III facilities).

The implementation plans for all facilities must include the following:

a construction schedule for existing facilities which shall include beginning and ending time-frames for the installation of all major features such as monitoring wells and liners. (Time-frames must be specified in days, with day one being the date of standard permit issuance); and

An Implementation Schedule outlining the above-requirements is included **Appendix BB.**

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.I.b**Details on phased implementation if any proposed facility is to be constructed in phases.**

The operational plan for Colonial Landfill is for a continuous sequence of excavation and fill. The site is divided into Areas I, II, IIA, IIB, and III to identify portions of the facility. Construction will be an ongoing process to manage waste volumes.

As constructed areas of the landfill are approaching capacity, the next area of the landfill will be constructed. These areas of construction will typically be constructed in increments that provide one to three years of anticipated airspace capacity. As discussed in the response to LAC 33:VII.521.F.3.b, interim cover or interim compacted cover will be applied on all operating areas of the facility that will not receive solid waste for a period of longer than 60 days.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.I.2

The implementation plans for Type I and II facilities must include a plan for closing and upgrading existing operating areas if the application is for expansion of a facility or construction of a replacement facility.

Colonial Landfill is an existing facility. Area I is certified closed. An implementation schedule for the construction of Areas IIA, IIB, and III is included in **Appendix BB**.

Each cell for Phase III will typically be 1100 feet long by 200 feet wide. Wastes will be disposed in lifts with each lift moving in a general west to east direction in a stair-type configuration.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.J.1.a

Facility Closure. Standards governing facility closure are contained in LAC 33:VII.711.E (Type I and II landfills), LAC 33:VII.713.E (Type I and II surface impoundments), LAC 33:VII.713.E (Type I and II landfarms), LAC 33:VII.717.I (Type I-A and II-A facilities), LAC 33:VII.721.D. (construction and demolition debris and woodwaste landfills), LAC 33:VII.723.D (Type III composting facilities), and LAC 33:VII.725.D (Type III separation facilities)

The closure plan for all facilities must include the following:

the date of final closure;

The final date for receipt of waste is based on air space volumes, current disposal volumes, and compaction factors. To the extent that resource recovery programs are successful, the life of this site may be extended. Current life projections indicate the site will be filled in the year 2025.

The LDEQ Office of Environmental Services, Permits Division will be notified in writing of the intent to close this facility a minimum of 90 days prior to beginning closure operations. This notification will include the date of planned closure, any changes requested to the closure plan, and the closure schedule and estimated cost.

A current closure cost estimate is included as **Appendix CC**.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.J.1.b**The method to be used and steps necessary for closing the facility; and**

BFI acknowledges that landfills must be closed in a manner that minimizes the need for further maintenance and minimizes the post-closure release of leachate to ground or surface waters to the extent necessary to protect human health and the environment. Quality control measures have been developed and implemented to ensure that the final cover is designed, constructed, and installed properly.

The solidification basin will become part of the disposal footprint as construction proceeds into the designed area of Area IIB. The closure of the solidification basin and associated structures will be accomplished in a manner and timeframe that will allow for the continued, efficient operation of the landfill.

The steps for closure will include, but not limited to, removal of all of the waste material from the basins and adjacent concrete areas, steam cleaning and rinsing of those areas, dismantling and disposal of the concrete basins and building structures and removal of any visually contaminated soils in the vicinity of the basins. The soils beneath the mixing basins will be evaluated in the following manner:

1. Visually impacted soils will be removed and disposed of or used for daily cover at the landfill.
2. Once all visually impacted soils have been removed, a grid will be established to determine confirmatory soil sampling locations.
3. Soil samples will be obtained and sent to an LDEQ accredited analytical laboratory under proper chain of custody protocol.
4. The soil samples will be analyzed for the same parameters that are contained in the facilities facility's annual leachate analysis.
5. The results of the sampling data will be compared to the applicable RECAP standards to ensure that the appropriate standards are achieved.

The leachate collection tanks will remain in place during the post-closure period until it is determined by the administrative authority that leachate collection is no longer required. The closure of the tanks will involve the removal and off-site disposal of any remaining liquid material. Afterwards, the tanks would be reused or sold.

During the operational life of the facility, closure of completed areas (*i.e.* areas that have reached final grade) will be accomplished on an ongoing basis. Final cover consisting of a recompacted clay or a GCL liner system will be initiated within 30 days and completed within 90 days after reaching final grades. BFI understands these deadlines may be extended by the administrative authority if necessary due to inclement weather or other circumstances to a maximum of 60 days for initiation and a maximum of 180 days for completion.

Final closure will occur as soon as the gas system is installed. The gas system will typically be installed prior to the clay cap being installed.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

Prior to placement of final cover, the surface of the waste will be graded and proof-rolled. Any soft or spongy spots will be filled in with cover material and will be properly compacted in connection with placement of the final cover. The runoff-diversion system will be maintained until the final cover is installed and will be maintained and modified if necessary to prevent overflow of the landfill to adjoining areas.

Any low spots, due to local settlement, will be filled and standing water will be removed. The surface will be graded to have a maximum slope of 4 horizontal to 1 vertical, and a minimum slope of 4%.

An insect and rodent inspection will be conducted and documented before installation of the final cover. Extermination measures will be provided, if required, as a result of this inspection.

The final cover system will consist of at least twenty-four (24) inches of RCL having a permeability of less than 1×10^{-7} cm/sec and a 40-mil FML installed directly over the recompacted clay. The FML will be limited to the flatter portions of the landfill (*i.e.*, approximate 4% sloped areas). After a closure inspection and approval, BFI will place a minimum of 6 inches of soil capable of supporting vegetation to prevent erosion and return the facility location to a more natural appearance.

An alternate to the RCL will be a GCL system, which will consist of a GCL, overlaid by a 40 mil FML and covered by 18 inches of cover soil. On both the RCL and the GCL, the 40-mil FML will be limited to the flatter portions of the landfill (*i.e.*, approximate 4% sloped areas).

Colonial Landfill may utilize other covers that satisfy the purposes of minimizing infiltration of precipitation, fire hazards, odors, vector food and harborage, as well as discouraging scavenging and limiting erosion. Other covers will be approved by the administrative authority prior to use. Any alternate final cover will provide a performance equivalent to or better than the final cover requirements provided in LAC 33:VII.711.E.3.a.ii and iii.

During the closure of each new area of the landfill, the existing gas removal system will be expanded into the area to be closed and connected to the gas flare to reduce the potential for gas migration.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.J.1.c

The estimated cost of closure of the facility, based on the cost of hiring a third party to close the facility at the point in the facility's operating life when the extent and manner of its operation would make closure the most expensive.

The updated closure cost estimate is provided in **Appendix CC**. This closure cost estimate addresses all areas of the landfill addressed in the permit renewal application. The estimate is based on hiring a third party to close the facility at the point in the facility's operating life when the extent and manner of its operation would make closure the most expensive.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.J.2.a

The closure plan for Type I and II landfills and surface impoundments must include:

a description of the final cover and the methods and procedures used to install the cover;

Before closure, all slopes to be closed will be proof rolled and graded to drain. If soft areas develop, these areas will be repaired. Once an area reaches final grade, final cover operations will begin within 30 days and be completed within 90 days unless weather or unforeseen problems cause delay, in which case an extension may be requested.

The final cover material will consist of at least twenty-four (24) inches of RCL having a permeability of less than 1×10^{-7} cm/sec and a 40-mil FML installed directly over the recompacted clay. The FML will be limited to the flatter portions of the landfill (*i.e.*, approximate 4% sloped areas). A minimum of 6 inches of soil capable of supporting vegetation will cover the entire site.

An alternate to the RCL will be a GCL system, which will consist of a GCL, overlaid by a 40 mil FML and covered by 18 inches of cover soil. On both the RCL and the GCL, the 40-mil FML will be limited to the flatter portions of the landfill (*i.e.*, approximate 4% sloped areas).

Colonial Landfill may utilize other covers that satisfy the purposes of minimizing infiltration of precipitation, fire hazards, odors, vector food and harborage, as well as discouraging scavenging and limiting erosion. Other covers will be approved by the administrative authority prior to use. Any alternate final cover will provide a performance equivalent to or better than the final cover requirements provided in LAC 33:VII.711.E.3.a.ii and iii.

Geomembrane liner will be installed in accordance with the Construction Quality Assurance for Synthetic Bottom and Cap Liner Installation. Recompacted clay will be installed in accordance with the Minimum QA/QC Procedures for Clay Liner and Cap Construction. Top soil will be placed in accordance with Minimum CQA Procedures for Top Soil Installation. (Refer to **Appendix T**.)

After approval of the final cover, grass will be planted to protect the closed area from erosion.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.J.2.b

an estimate of the largest area of the facility ever requiring a final cover at any time during the active life;

The largest area of the facility ever requiring final cover during the active life of the facility will be approximately 52.6 acres.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.J.2.c

an estimate of the maximum inventory of solid waste ever on-site over the active life of the facility; and

The total maximum waste capacity of the Colonial Landfill is estimated as 24.3 million cubic yards.

BFI WASTE SYSTEMS OF LOUISIANA, LLC**LAC 33:VII.521.J.2.d****a schedule for completing all activities necessary for closure.**

The entire site is considered to be a single facility. For identification purposes, the facility is subdivided into Areas I, II (including IIA and IIB) and III.

The closure schedule is as follows:

Closure activities	Months					
	1	2	3	4	5	6
Remove any standing water	√					
Fill In Low Spots	√					
Inspect for Rodents	√					
Compact/ Grade Waste	√					
Install Clay or GCL and Liner		√	√	√		
Install Vegetative Topsoil				√	√	
Seed and Establish Vegetation					√	√

The estimated life is based on growth projections of waste quantities to be received at the facility.

Area I was filled in 1993 with final closure in 1994. The operational life of Area II, including Areas IIA and IIB, and III will end in the year 2025 and will be covered within 180 days and closed within one year of final receipt of waste.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.J.3.a

The closure plan for all Type I and II facilities and Type III woodwaste and construction/demolition debris facilities shall include the following:

the sequence of final closure of each unit of the facility, as applicable;

Area I stopped the receipt of waste in 1993 with closure in 1994. Area II is estimated to be filled by approximately 2007, and immediately afterwards Area IIA will be constructed followed by either Area IIB or Area III. Final closure will occur in the same fill sequence as the fill pattern.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.J.3.b

A drawing showing final contours of the facility; and

Final contours are shown in **Figure 6 of Appendix I.**

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.J.3.c

a copy of the document that will be filed upon closure of the facility with the official parish recordkeeper indicating the location and use of the property for solid waste disposal, unless the closure plan specifies a clean closure.

A copy of the document to be filed with the Ascension Parish Clerk of Court can be found in **Appendix DD**. This document will update the parish mortgage and conveyance records by entering the specific location of the facility and specifying that the property was used for the disposal of waste. The document will identify the name and address of the person with knowledge of the contents of the facility. The facility will provide the LDEQ Office of Environmental Services, Permits Division with a true copy of the document filed and certified with the parish clerk of court.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.K.1.a

Facility Post-closure. Standards governing post-closure requirements are contained in LAC 33:VII.711.F (Type I and II landfills), LAC 33:VII.713.F (Type I and II surface impoundments), LAC 33:VII.715.F (Type I and II landfarms), and LAC 33:VII.721.E (Type III construction and demolition debris and woodwaste landfills).

**The post-closure plan for all facilities must include the following:
specification of the long-term use of the facility after closure, as anticipated; and**

After closure, the facility will be monitored during the post-closure care period. There is no specific use planned for this facility after post-closure at this time. Any use of the facility during post-closure will be approved by the administrative authority prior to implementation.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.K.1.b

the cost of conducting post closure of the facility, based on the estimated cost of hiring a third party to conduct post-closure activities in accordance with the closure plan.

A post-closure cost estimate is provided in **Appendix CC**. This post-closure cost estimate addresses all areas of the landfill addressed in the permit renewal application.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.K.2.a

The post closure plan for Type I and II facilities must include the following:

the method for conducting post-closure activities, including a description of the monitoring and maintenance activities and the frequency at which they will be performed;

The groundwater monitoring wells will be sampled and analyzed semi-annually for the duration of the post-closure period in accordance with the requirements of LAC 33VII.709.E. Written reports of groundwater sampling results will be submitted to the Administrative Authority semi-annually, and will document the chain of custody of all samples. A copy of the Groundwater Sampling and Analysis Plan is included in **Appendix U**.

Final cover will be monitored and maintained for 30 years after closure. The site will be monitored for erosion, subsidence, washouts, tears, and similar damage to the final cap. If these areas are found, corrective measures will be taken. BFI will maintain the integrity and effectiveness of the final cover (including making repairs to the cover as necessary to correct the effects of settling, subsidence, erosion, or other events), and prevent run-on and run-off from eroding or otherwise damaging the final cover. Annual reports will be provided to the LDEQ Office of Environmental Services, Permits Division on the integrity of the final cap.

The leachate collection and removal system will be maintained and operated until leachate is no longer generated or BFI can demonstrate that the leachate no longer poses a threat to human health and the environment in accordance with LAC 33:V.I.Chapter 13. During active collection and removal, force mains will be checked for signs for leakage and repaired as soon as any problem occurs. Leachate pumps and collection systems will be checked to assure continuous operation.

The gas collection system will be maintained and monitored on an ongoing basis during the post-closure care period. To assure proper operation, a gas monitoring plan will be followed. A copy of the gas monitoring plan is located in **Appendix AA**.

To restrict unauthorized access to the facility, the perimeter barrier will be maintained around the site for the post-closure care period.

The length of the post-closure care period may be decreased by the administrative authority if the facility demonstrates that the reduced period is sufficient to protect human health and the environment in accordance with LAC 33:I.Chapter 13, or increased if the lengthened period is necessary to protect human health and the environment.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.K.2.b**the method for abandonment of monitoring systems, leachate collection systems, gas-collection systems, etc.;**

The groundwater monitoring system will be abandoned according to the procedures outlined in the Groundwater Sampling and Analysis Plan (**Appendix U**).

Once it is no longer necessary for the collection of leachate, all pumps, tanks and above ground improvements may be removed and the area graded to drain. Leachate collection sumps will be capped and left in place.

The gas collection system will remain in operation during the duration of the post-closure period unless otherwise directed by the administrative authority. After the gas collection system is no longer needed, gas vents, blowers, flares and other above ground improvements shall be removed and the header pipes capped with blind flanges and abandoned in place.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.K.2.c

measures planned to ensure public safety, including access control and gas control; and

The final cap integrity will be maintained during the post-closure care period. This will reduce the amount of moisture that enters the landfill. In addition, the groundwater monitoring system will be monitored during the post-closure care period.

Unauthorized access will be restricted through the use of signs, natural barriers, and fences.

A landfill gas monitoring program will be conducted on a quarterly basis along the site perimeter and in buildings on the landfill site. A copy of this plan is included as **Appendix AA**.

As part of the closure plan, the existing leachate collection system will be maintained during the post-closure care period.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.K.2.d**a description of the planned uses of the facility during the post-closure period.**

During the post-closure period, there are no plans for use of the facility. The administrative building may be used to house a collection company; however, at this time there are no definite plans for this use. Any use of the facility during post-closure will be approved by the administrative authority prior to implementation.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.L.1

Financial Responsibility. Standards governing financial responsibility are contained in LAC 33:VII.727. A section documenting financial responsibility according to LAC 33:VII.727 which contains the following information, must be included for all facilities:

the name and address of the person who currently owns the land and the name and address of the person who will own the land if the standard permit is granted (if different from the permit holder, provide a copy of the lease or document which evidences the permit holder's authority to occupy the property); or

Owner:

BFI Waste Systems of Louisiana, LLC.

Financial Assurance is provided by BFI Waste Systems of Louisiana, LLC's parent company, Allied Waste Industries, Inc.

Address and Phone Number:

15880 N. Greenway-Hayden Loop, Suite 100, Scottsdale, Arizona 85260
(480) 627-2700.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.L.2

the name of the agency or other public body that is requesting the standard permit; or, if the agency is a public corporation, its published annual report; or, if otherwise, the names of the principal owners, stockholders, general partners, or officers;

A copy of the most recent annual report for BFI Waste Systems of Louisiana LLC's parent company, Allied Waste Industries, Inc., is located in **Appendix EE**.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.L.3

Evidence of liability coverage, including:

- a. personal injury, employees and the public (coverage, carriers, and any exclusions or limitations);**
- b. property damage (coverage and carrier);**
- c. environmental risks; and**

A copy of liability coverage is included as **Appendix EE**.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.L.4

Evidence of a financial assurance mechanism for closure and/or post-closure care.

Financial Documentation is included in **Appendix EE**.

BFI acknowledges that upon determination by the administrative authority that the facility has completed closure in accordance with the approved plan, the administrative authority will release the closure fund to the permit holder.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.521.M

Special Requirements

The administrative authority may require additional information for special processes or systems and for supplementary environmental analysis.

BFI acknowledges that the administrative authority may require additional information for special processes or systems and for supplementary environmental analysis.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

LAC 33:VII.523

PART III: ADDITIONAL SUPPLEMENTARY INFORMATION

BFI WASTE SYSTEMS OF LOUISIANA, LLC

**Environmental Assessment Statement
"Expanded IT Decision" Questions**

The Louisiana Environmental Quality Act (EQA) at Title 30 of the Louisiana Revised Statutes (La.R.S 30:2018) requires an application for a new permit or a modification of an existing permit that would authorize the discharge of water pollutants, storage and disposal of solid/hazardous waste, air emissions in sufficient quantity or concentration to constitute a major source or major modification under the Louisiana Department of Environmental Quality (LDEQ) rules to submit an "environmental assessment statement" (EAS) as a part of the permit application.

The BFI Waste Systems of Louisiana, LLC (BFI) Colonial Landfill is located at 5328 LA Highway 70, Sorrento, Louisiana in Ascension Parish. The area served by this facility has the highest population density in the state, including Ascension Parish, which is the second fastest growing parish according to 2000 U.S. census data.

Presented below are responses to the "IT Questions" as they relate to the BFI Colonial Landfill Permit Renewal Application. These responses are comprehensive in nature and satisfy the intent of the "IT Questions". BFI will provide additional information upon request from the LDEQ.

1.0 Have the potential and real adverse environmental effects of the proposed facility been avoided to the maximum extent possible? (This question requires the applicant to identify adverse environmental effects, both potential and real)?

A. What are the potential environmental impacts of the permittee's proposed facility?

1. What wastes will be handled?

- a. Classes of chemicals**
- b. Quantities (hazardous and non-hazardous)**
- c. Physical and chemical characteristics**
- d. Hazardous waste classification (listed, characteristic, etc.)**

The facility accepts solid wastes that are non-hazardous as defined in the Louisiana Administrative Code (LAC) LAC 33.V.105. The wastes are not listed as hazardous and do not have characteristics of hazardous wastes.

Average annual receipts of solid waste are anticipated to approximately 655,200 tons during the permit term and are estimated to increase based on population growth in the vicinity of the landfill.

All material that is landfilled contains no free liquids as determined by the paint filter test. Any waste material containing free liquids

BFI WASTE SYSTEMS OF LOUISIANA, LLC

will be stabilized on-site by the addition of non-hazardous drying agents such as kiln dust, fly ash, or other materials approved by the administrative authority.

2. How will the wastes be handled?

- a. Treatment**
- b. Storage**
- c. Disposal**

The majority of the wastes received at the facility will be landfilled immediately. However, any wastes containing free liquids will be stabilized using commercially available non-hazardous drying agents. In addition, some industrial non-hazardous solid wastes may be treated biologically using aeration to assist in the degradation of organic constituents.

3. Sources of waste

- a. On-site generation (type and percentage of total handled)**
- b. Off-site generation (type and percentage of total handled)**

On-site generation of solid waste is anticipated to be less than one percent of the total waste handled. It will be limited to accumulated trash from offices and residual wastes from cleaning and maintenance operations. Used oil and other maintenance fluids will be collected and recycled or disposed of off-site in a permitted facility by properly licensed handlers.

The degradation of wastes and percolation of infiltrated rainwater within the landfill generates leachate. The leachate and any storm water that comes in contact with waste materials are collected and segregated from non-contact waters. The degradation of solid wastes also produces landfill gas. The gas typically contains approximately 50% methane and trace amounts of other compounds with the balance consisting of entrained air.

Off-site generation of waste will be from municipal, commercial, and industrial sources. The primary source of waste is residential customers. Commercial and industrial generators will also dispose of waste at the facility. The expected percentages of wastes are:

On-site Generated Waste	<1%
Residential/Commercial Waste	56%
Industrial Waste	40%
Other	3%

However, these percentages may change due to increases in demand.

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Where will the wastes be shipped if not handled at the site?

Leachate and contaminated storm water will be collected and pumped to on-site storage tanks and eventually shipped offsite for treatment and disposal. The non-contact storm water will be discharged in conformance with the facility's LPDES water permit(s). Future plans may involve the installation of a wastewater treatment system to treat leachate and contaminated storm water.

Used oil and other maintenance fluids will be transported to licensed recycling or disposal facilities. All other waste will be disposed of in the landfill.

4. What wastes will remain on-site permanently?

Residential, commercial, industrial and on-site solid wastes will be placed in lined landfill cells. After each cell reaches its design elevation, it will be capped in conformance with the approved closure plan for the landfill.

B. By which of the following potential pathways – air, water, soil, food, - could releases of hazardous material from the proposed facility endanger local residents or other living organisms?

The facility will not accept hazardous waste and has a comprehensive Special Waste Acceptance Plan (See Appendix K of the Permit Renewal Application) in place to ensure that hazardous waste and any other unacceptable waste are not received at the facility. Nevertheless, environmental safeguards and engineering design controls are in place to minimize any possible pathways for contaminants associated with the waste disposal at the facility.

Possible pathways may include air, water, soil, and food. Via the air pathway, landfill gas containing less than a small non-methane fraction (<0.05%) may be discharged. However, the use of daily interim and final covers and the implementation of a gas collection/control system will minimize the potential impacts from the air pathway.

If contaminated storm water is not contained, contaminants could enter surface waters containing living organisms and impact those organisms that may potentially be used for fishing and recreation. However, the site levees and drainage system have been designed to control all runoff from a 25-year/24-hour storm event. Furthermore, in the unlikely event of a release, site personnel are equipped and trained to contain any releases that may occur outside of a containment area to prevent environmental impacts to water and/or soil. If any water is impacted, it will be collected and treated according to applicable water discharge requirements.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

Impacted soils will be excavated and disposed of in accordance with all applicable disposal requirements.

In addition, the facility has constructed a clay slurry wall around the Phase I and II areas to further prevent any potential releases from impacting the surrounding groundwater. A slurry wall will also be constructed around Phase III. If a failure did occur in the landfill's liner system and the generated leachate was not properly collected, then the potential exists for the contaminated water to penetrate subsurface confining layers and enter the underlying subsurface zones. As discussed further in Subpart C below, the landfill is designed with a composite liner system and leachate is quickly collected. The shallow groundwater zones beneath the site are monitored by the facility's groundwater monitoring network to detect a release at the earliest possible occurrence. In the event of a release, immediate action would be taken to ensure groundwater quality is monitored and appropriate response taken. The facility's designed protection systems and rapid response to any potential incidents will ensure that all pathways that may endanger local residents or other living organisms, including air, water soil, and food, are eliminated.

C. What is the likelihood or risk of such releases?

Prior to the placement of waste within a landfill cell or holding area, berms are constructed for run-on/run-off control. If a potential hurricane or significant storm event is identified within 24 hours of reaching the facility, all wastes are covered to prevent contamination of any storm water that could exit the containment areas. Thus, the likelihood of a release is considered to be very low.

Each proposed landfill cell is designed with a composite lining system as described in the permit application. An extensive leachate collection system prevents the accumulation of generated leachate. The drainage system is comprised of a 1-foot sand layer underlain by gravel drains and a minimum 6-inch HDPE perforated collection pipe constructed of materials resistant to leachate. The leachate is pumped to storage tanks and treated off-site. The composite liner and collection system substantially reduces the likelihood of a release to underlying groundwater zones.

Additionally, an impermeable slurry wall and a groundwater monitoring system designed and constructed to monitor the integrity of the facility's liner system is in place. In accordance with the LDEQ requirements, the facility is required to sample and monitor the groundwater monitor wells semi-annually to verify containment.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

D. What are the real adverse environmental impacts of the permittee's proposed facility?

- 1. Short term effects**
 - a. Land area removed from system**
- 2. Long term effects**

A possible short term and long term effect is the land area that is taken out of service. This effect has been minimized by use of the Phase III area that is adjacent to the existing facility and is not likely to be used for other purposes. The use of this adjacent land provides much more airspace per acre than a non-contiguous piece of property. The development of this adjacent property will allow airspace up against and over the top of the existing landfill, which provides for almost 50% more airspace than a stand alone, non-contiguous parcel of land.

Other short-term effects are the potential impacts associated with air emissions and contaminated run-off. Long-term effects are limited to the potential for infiltration of leachate from the landfill into the groundwater. The following steps will be taken to avoid any potential or real adverse effects on the environment from the facility.

1. Unavoidable impacts to wetlands under the jurisdiction of the United States Army Corps of Engineers (USACE) will be mitigated with methods outlined in an approved mitigation plan. The compensatory mitigation plan will be developed with input from state and federal resource and regulatory agencies.
2. Fencing or other egress deterrents will be constructed to deter unauthorized entrance to the site.
3. The existing perimeter levee around the facility will be extended to incorporate the expansion area. The levee system will prevent storm water entry into the active area or a release of untreated water from the active area.
4. The deposited waste will be covered daily to prevent odors, harborage of rodents, insect disease vectors or similar events from becoming a problem.
5. The active area of the landfill will be minimized by applying interim and final covers over the landfill soon after each area reaches final elevation. The interim and final covers will be graded and vegetated to minimize erosion.
6. BFI has demonstrated expertise, competence, and experience in the operation of modern sanitary landfills, thereby minimizing any potential effect that may result from inexperienced or untrained operators.
7. The floor and side slope areas of the landfill cells will be lined with a minimum three-foot thick layer of low permeability (1×10^{-7} cm/sec or less) recompacted clay,

BFI WASTE SYSTEMS OF LOUISIANA, LLC

- overlain by a 60-mil HDPE liner, or other approved equivalent liner system. This composite liner system will prevent the migration of leachate from the landfill.
8. A leachate collection system will be installed to remove leachate from the landfill and maintain the leachate head so that not more than one foot of leachate collects above the lowest bottom elevation of the leachate collections lines.
 9. Generated leachate will be maintained in on-site tankage and disposed of at an approved off-site facility or in the future may be treated on-site.
 10. A groundwater monitoring system has been installed and monitored semi-annually to detect any releases from the landfill at the earliest possible occurrence. This system will be modified to include additional monitoring wells for the expansion area.
 11. Complete records of all material and vehicles entering the landfill will be maintained for QA/QC and security purposes.
 12. No scavenging or burning of waste, no illegal dumping, and no hazardous wastes or prohibited wastes will be allowed at the landfill.
 13. The landfill has been designed to ensure structural stability of the mass and long-term performance of the composite liner and leachate collection system, as demonstrated by the engineering design calculations presented in this permit renewal application.
 14. Only permitted and properly profiled non-hazardous waste will be disposed of at the facility. Waste inspection procedures will be in place to ensure that hazardous waste and other unpermitted waste streams are not disposed of at the facility.
 15. Gas collection wells will be installed as each cell is completed to minimize potential odors and control air emissions.
 16. The closest residence or commercial site is located approximately 0.75 miles north of the existing landfill. Some small buildings used for recreational purposes are located approximately 500 feet north of the facility.

The following on-site security systems exist at the facility: natural egress deterrent along the entire facility boundary; security personnel at the main gate during operating hours; gated entrances to the site; security lighting of gates and perimeter; telephone and radio systems for communications with on-site and off-site emergency personnel and employees; protection of all tanks, valves, pipelines, and other handling equipment from vehicular movement; lighted personnel barriers placed around hazardous locations; and posting of warning signs at the main gate and at intervals of less than 200 feet on the perimeter barriers.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

Qualified personnel assigned to operate the facility participate in training programs, QA/QC programs, and safety programs. Each new employee is trained in the general orientation and operation of the facility. Furthermore, a training program related to the specific duties of each job function is specifically tailored to that position. No employee is permitted to work unsupervised until the employee has successfully completed all elements of the training program. In addition, every employee will participate in training updates to maintain proficiency, and learn new techniques and procedures that reinforce safety and compliance consciousness. The training program is designed to familiarize personnel with emergency procedures, emergency equipment, and emergency systems, including the use of communication systems; procedures for using, inspecting, repairing and replacing facility emergency and monitoring equipment; the operation of automatic cutoff systems; response to groundwater contamination incidents, shut-down of operations, and response to fires, explosion and other emergency events. Further details of the training program are detailed in Appendix W of the Permit Renewal Application.

- 2.0 Does a cost benefit analysis of the environmental impact costs balanced against the social and economic benefits of the proposed facility demonstrate that the latter outweighs the former? (This question requires the permittee to perform a cost-benefit analysis, or at least a quantitative indication of the economic benefits and a qualitative description of the negative impacts expected from the permittee's operation. The latter should come from the answer to Question 1).**

Yes. The social and the economic benefits of the proposed facility clearly demonstrate that the economic benefits of the project outweigh the environmental impact costs. The proposed project is an estimated \$315 million capital investment from BFI. An economic analysis for the construction and operation of Phase III of the Colonial Landfill was prepared by Dr. James A. Richardson and is located in **Attachment 1**.

The Regional Input-Output Modeling System (RIMS II), as created by the United States Department of Commerce, Bureau of Economic analysis (BEA), was used in this analysis for capturing the indirect economic impacts. The analysis focuses on (1) the business sales of Louisiana firms, (2) personal earning of Louisiana households, and (3) the number of jobs created by the proposed construction and operation of Phase III of the Colonial Landfill in Ascension Parish. The indirect or "ripple effect" during construction is forecasted to be \$16.77 million of business transactions, \$5.26 million of increased personal earnings, and 129 jobs created within the state. During the facility's operation, it is forecasted to create \$15.97 million in business transactions, \$3.95 million of increased personal earnings, and 118 jobs within the state.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

- A. How was it determined that this facility was needed?**
- 1. Local or regional survey**
 - 2. On-site or off-site needs**
 - 3. Regional solid waste management benefit**
 - 4. Generic survey of solid waste needs (compatibility with master plan)**

Landfills exist because there is a demand for landfill services. Solid waste is created in the process of constructing and renovating plant facilities, public buildings, and residential housing; in the process of producing goods; and, in the process of consuming goods and services. Municipal solid waste is disposed of in landfills. Landfills are a necessary part of the production process. People and business enterprises produce the waste that needs to be properly disposed of and managed long-term.

Ascension Parish had an estimated population of 81,792 in 2002, a 6.7 percent growth over 2000. From 1990 to 2000, the population in Ascension Parish grew by 31.6 percent. Population in Louisiana grew by 5.9 percent during this decade. The overall Baton Rouge Metropolitan Area during this decade grew by approximately 17.8 percent with Livingston Parish growing by 30.2 percent, East Baton Rouge Parish growing by 8.6 percent, and West Baton Rouge Parish growing by 11.2 percent. Population growth was extremely large in Ascension and Livingston Parishes during the 1990s and continuing into the 2000s. Population growth in the Baton Rouge Metropolitan Area was almost three times the population growth in the overall state of Louisiana. Population growth in Ascension Parish was even more pronounced being about 5.4 times greater than the growth of population in Louisiana. This population growth means more governmental organizations and more jobs in these areas. It also means more waste.

Potential users of the landfill are listed in **Table 1**—these are people and business establishments in parishes in and around Ascension Parish. These data are based on 2002 County Business Patterns and the US Census as of 2003. People, businesses, and governmental organizations create solid waste. Most of the solid waste generators landfill use will be indirect. These persons and businesses will not take waste to a landfill, but will expect someone else to be able to take their waste to a landfill. The significance about Ascension Parish is its growth rate, and this is also true for a number of parishes around Ascension Parish. East Baton Rouge Parish, though not growing as fast as Ascension and Livingston Parishes, is still growing at almost three times the state's growth rate.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

Table 1
Users of Landfills
Business Establishments and Private Employment as of 2002
Population as of 2003

Parish	Business Establishments	Private Employment	Population
Ascension	1,639	24,761	84,424
Assumption	253	2,298	23,263
East Baton Rouge	11,412	209,893	412,447
Iberville	516	10,384	32,811
Livingston	1,353	12,418	102,046
St. Charles	903	18,080	49,313
St. James	306	5,395	21,118
St. John the Baptist	643	10,767	44,816
State	101,885	1,583,378	4,496,334

Source: US County Business Patterns, 2002; US Census 2003.

Another method of examining the need for a product is to evaluate its real price—that is, its price after adjusting for inflation. The price of disposing of solid waste has risen by 20 percent from 2001 through 2005. General prices have risen over this same period of time by about 8 percent. The real price of disposing of solid waste has risen. The rising real price of disposing of solid waste is another indicator that this resource is scarce and additional landfill capacity is needed.

Having an accessible and competitive landfill reduces the cost of doing business in an area and the cost of living in an area. These are very tangible economic benefits that are directly related to the availability of a landfill. These are recurring benefits that last as long as the landfill is operating. In addition, the market system depends on competition to keep prices consumer-friendly.

From a market perspective the ultimate indicator of the need for a landfill is that private companies are willing to risk \$30 million over four years to construct the landfill and the additional expenses of closing the landfill if waste volumes do not support it. This decision suggests that the private companies have done their market analysis and believe this investment will provide an acceptable rate of return. Companies do not put up \$30 million without a careful analysis of the market environment. Certainly, part of the market environment is the growth of this area in terms of population and business establishments.

The waste receipts of the existing operation serve as a generic survey of the solid waste needs for the service area. Daily waste receipts of 1800 tons per

BFI WASTE SYSTEMS OF LOUISIANA, LLC

day have been typical for the past several years. Waste receipts are projected to increase based on the projected population growth in the vicinity of the landfill. This data supports the need for the expansion of the existing facility since the current operation is expected to reach capacity in less than 2 years.

B. What will be the positive economic effects on the local community?

- 1. How many permanent jobs will be created?**
- 2. What is the expected annual payroll?**
- 3. What is the expected economic multiplier from Item B2?**
- 4. What is the expected tax base and who will receive benefits?**

During the phased construction period of the landfill, an estimated 30 skilled craftsmen will be employed at the site. Employment impacts will stretch from the construction industry to various service industries to financial transactions, retail trade, etc.

This project leads to \$16.77 million of business transactions per year within the state, household earnings of \$5.26 million, and 129 direct and indirect jobs for each year of the construction phase. This economic activity is spread across various sectors of the economy with 40 percent of the newly created statewide jobs being in the construction sector, 27 percent being in the service sector of the economy, and 17 percent being in wholesale and retail trade.

The construction phases of the Colonial Landfill will have the largest impact in Ascension Parish and some impact on surrounding parishes. The construction project will create 67 new jobs in Ascension Parish for the duration of the project, with household earnings of \$3.35 million. Over 74 percent of the new jobs created will be in the construction sector with other jobs in the service sector, wholesale and retail trade, and financial sector.

Personal earnings throughout the parish associated with the continued operation of the Colonial Landfill are estimated to be \$15.97 million per year with 118 new jobs being created. The average annual earning is estimated to be about \$33,374. About 47 percent of the jobs created from the continued operation of the Colonial Landfill will be located in Ascension Parish.

The recurring statewide economic impacts from the operation of the Colonial Landfill include increased total business activity of \$15.97 million, personal earnings of \$3.95 million, and 118 jobs created. The local communities are estimated to benefit from \$8.74 million in additional business transactions, approximately \$1.91 million in personal earnings, and the creation of 55 jobs.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

C. What will be the potential negative economic effects on the local community?**1. What are the possible effects on property values?**

The Phase III area included in the renewal application is adjacent to the current landfill. Thus local property values will not be impacted by expansion into an adjacent area. If a new site were developed in lieu of expanding into the adjacent area, property values may unnecessarily be reduced. Therefore, proposed expansion prevents property values from being reduced in other areas of the service region.

2. Will public costs rise for:

- a. Police protection**
- b. Fire protection**
- c. Medical facilities**
- d. Schools**
- e. Roads**

Police Protection

There should be no increased police protection required as a result of the continued operation of the Colonial Landfill since the facility will utilize its own security staff.

Fire Protection

There should be no increased fire protection required as a result of the continued operation of the Colonial Landfill beyond the current existing requirements.

Medical Facilities

There should be no increased demand placed on the local medical facilities as a result of the continued operation of the Colonial Landfill. The existing medical facilities should be adequate since the majority of the new job positions created as part of this project will be filled with local residents.

Schools

There should be no increased demand placed on the local school systems as a result of the continued operation of the Colonial Landfill. The existing schools should be adequate since the majority of new jobs created as part of this project will be filled with local residents; their children should be currently enrolled in schools around the region.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

Roads

Louisiana Highway 73 should be adequate to handle the increased traffic during the construction phase of the project as well as the continued operation of the landfill.

3. **Does the prospective site have the potential for precluding economic development of the area by the business or industries because of risk associated with establishing such operations adjacent to the proposed facility?**

The continued operation of the facility will not adversely affect economic development of the area by business or industry. Approximately 90% of the surrounding areas are undeveloped land. Undeveloped forestlands and agricultural land use are estimated to be 56% and 34% of the surrounding land use, respectively. Industrial land use comprises approximately 3% of the surrounding area. Only an estimated 3% of the area within a three-mile radius of the site is residential.

D. Was transportation a factor in choosing the proposed site?

1. **What modes of transportation will be used for the site?**
2. **What geographical area will it serve?**
3. **By how much will local road traffic volume increase?**
4. **What are the long-term expectations for the site?**
 - a. **Longevity of the facility**
 - b. **Facility ownership**
 - c. **Financial considerations**
 - d. **Anticipate closure**
 - e. **Site responsibility post-closure**
 - f. **Closure assurances**
 - g. **Financial assurances**
 - h. **Closure certification**
 - i. **Post-closure land purchase**

The site is near a state highway and interstate. This was a factor in siting the current operation since trucking is the mode of transportation used at the site. Based on correspondence with the Louisiana Department of Transportation and Development (LDOTD), traffic associated with current operations at Colonial Landfill is not having an adverse impact on area roadways. The geographic service area of the facility will remain unchanged with the permit renewal application.

Annual waste receipts are projected to increase by approximately 10% annually. Road traffic associated with the facility is expected to increase to meet the project waste receipt increase and the

BFI WASTE SYSTEMS OF LOUISIANA, LLC

population growth of Ascension Parish. The additional quantity of trucks should not create any additional impact on area roads.

As each area within the landfill reaches the final design elevation, closure cover will be installed. As each area is closed, a qualified independent professional engineer registered in Louisiana will certify closure in accordance with the permit documents and approved closure plan. BFI owns the facility, and BFI is responsible for closure of the site in accordance with permit documents and the applicable regulations in effect at the time of closure. BFI has issued the requisite financial instruments to ensure that the facility will be properly closed and that the required post-closure maintenance and monitoring will be conducted.

To protect the public from unwittingly purchasing land after closure, a record in the parish mortgage and conveyance records will be filed describing the specific location of the facility and specifying that the property was used for the disposal of solid wastes. The document shall identify the name of the person with knowledge of contents of the facility, as well as providing the quantities in place. A copy of the document, filed and certified by the parish clerk of court, will be sent to the LDEQ, Office of Environmental Compliance.

3.0 Are there alternative projects that would offer more protection to the environment than the proposed facility without unduly curtailing non-environmental benefits? (This question requires the permittee to demonstrate having considered alternative technologies).

A. Why was this technology selected?

- 1. Are other technologies available?**
- 2. Describe the engineering design and operating techniques use to compensate for any site deficiencies.**

The utilization of alternative methods has been evaluated. Although alternative technologies are available, no other technology is economically viable while providing the maximum environmental benefits. Furthermore, all available alternatives generate a residual that must be land-disposed. In many cases, the resulting residual can have a high concentration of metals that can create greater risks than direct landfilling. The alternatives to landfilling are: incineration, resource recovery, and composting as described herein.

Incineration. Development of this type of project requires significant capital and a long time period to implement due to design and regulatory requirements. If an existing oil or coal-fired furnace was used, major retrofitting would have to be performed to allow the efficient burning of

BFI WASTE SYSTEMS OF LOUISIANA, LLC

waste. Achieving a thorough mixing and even flow of material into a combustion chamber is difficult. Also, slagging is often a problem, resulting in protracted down time. Very few units have been designed to handle refuse alone. Noncompliance with stringent air pollution standards has caused many of these projects to fail. Economic viability is also a problem, and tipping fees for these operations are typically substantially higher than for landfill disposal. In addition, the need for disposal is not eliminated, since the incinerator ash must be properly disposed. Because of the risk associated with municipal solid waste incinerators, very elaborate scrubbing systems are required. Volatile metals, plastics, and household cleaners can cause incinerators to emit toxic compounds and have the potential to create products of incomplete combustion (PICs). Accordingly, waste constituents can become more mobile with an incinerator than through landfilling.

Resource Recovery. Resource recovery is not considered to be feasible in this area at this time. The excessive costs for the operation of a waste to energy facility cannot be supported in the service area. If, however, the Baton Rouge metropolitan area should provide the correct economic and industrial environment to make resource recovery a feasible alternative in the future, the Colonial Landfill would be available for the necessary disposal of the ash generated by a resource recovery plant. However, the issues associated with resource recovery are similar to incineration and negative public perception is very difficult to overcome.

Composting. The market for compost is limited, and far more compost is produced than could be utilized. Refuse composting is also a problem, since materials such as rubber, plastics, and metals do not readily decompose. These materials make up a significant percentage of the solid waste stream being disposed at the Colonial Landfill, and would require landfilling even if composting was initiated. Based on the volume and non-biodegradable nature much of the material being handled at the site, composting is not feasible.

Landfilling. Landfill development is the only option that has been proven to be reliable, environmentally safe, and economically feasible for meeting the long-term disposal needs for the area. The future development and continued operation of a state-of-the-art landfill as described in this document will provide the most environmentally protective and cost-effective disposal option for the citizens of Ascension Parish and surrounding parishes, while benefiting the parish economically as well.

Phase III has been selected with a minimum potential for deficiencies. Additional environmental protection is provided by the construction of low permeability liner and leachate collection systems in the cells.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

B. Is the proposed technology an improvement over that presently available?

The proposed technology is currently considered state-of-the-art for solid waste landfill design. Engineering design improvements allow for a facility footprint that maximizes volume per square foot and minimizes the impacted area. Other facilities in Louisiana require greater areas to accommodate similar volumes.

C. Describe the reliability of the selected technology.

- 1. Past experiences**
- 2. Environmental impacts**

The use of composite liner systems that include 60-mil HDPE flexible membrane liners in conjunction with recompacted clay has proven highly effective and reliable in controlling potential environmental impacts. Historical groundwater monitoring data for the Colonial Landfill indicates that no impact has occurred to date from operation at the facility. In addition, leachate head within a cell is required to be maintained at no more than one foot. Thus there is little hydraulic gradient to encourage water flow out of a cell.

D. Describe the sequence of technology used from arrival of wastes to the end process at the facility.

- 1. Analysis of waste**
- 2. Unloading**
- 3. Storage**
- 4. Treatment**
- 5. Monitoring**
- 6. Closure**
- 7. Post-closure**
- 8. Disposal**
- 9. Residuals requiring further handling**

Record keeping is maintained to manage the operation and to prepare the required reports in accordance with administrative requirements of the state. Upon arrival at the site, all vehicles with incoming wastes are instructed by signage to stop at the facility gatehouse. The gatehouse is equipped with a central control and record keeping system for tabulating information on the wastes. Utilizing scales, the system records the quantity (by wet-weight tonnage); sources (whether the wastes were generated in-state or out-of-state and, if it is industrial solid waste, its origin); and types of incoming wastes (*i.e.*, industrial, commercial, residential). Industrial waste will be compared to the pre-acceptance information and checked for conformity. In the event of scale malfunction, the amount of waste is estimated and recorded in cubic yards, and the scale is repaired as soon as

BFI WASTE SYSTEMS OF LOUISIANA, LLC

practicable. Quantities delivered to the site via personal or commercial vehicles (e.g., pick-up trucks) are recorded in cubic yards and converted to tonnage according to the appropriate conversion factor for different types of waste streams (e.g. roofing shingles, tree debris).

The waste delivery and recording system, in conjunction with the facility security system, allow only limited and controlled access to the disposal area. The controlled and documented entry along with the random inspection of incoming waste loads will reasonably ensure exclusion of prohibited wastes. Facility personnel receive training in regulatory compliance that provides a review of applicable state regulations with emphasis on the facility solid waste permit. Certified facility operators receive additional training on regulatory compliance during scheduled meetings conducted by the Board of Certification and Training for Solid Waste Disposal System Operators and the LDEQ Permits Division.

Facility personnel will randomly inspect the load to verify that the waste has the physical appearance indicated on the previously approved documents and conforms to the type of waste accepted (e.g. industrial, commercial, or residential). Landfill personnel will subsequently make an entry in the site's record keeping system indicating the generator, waste name, vehicle number, time, date, volume, and location of deposited waste in the landfill by referencing the site grid coordinate system. Random inspections, for the purpose of hazardous waste exclusion, will be conducted near or adjacent to the working face within the certified disposal area over a clearly marked and properly bermed area that has received interim cover prior to placement in the working face of the landfill. The physical verification may entail obtaining a sample of the waste from each truck entering the site.

Commercial collection vehicles are not allowed to proceed into the landfill until authorized. The truck is logged in and directed to the unloading area. For industrial wastes, the receiving ticket is completed noting the location where the wastes are deposited. During unloading, the waste is visually monitored by the operator. If any potentially hazardous waste is detected, the vehicle is not permitted to leave the site until the nature of the waste is resolved.

Small non-commercial vehicles are typically permitted to dispose of waste in containers near the entrance gate to avoid traveling into the tipping area. This area is identified as the *non-commercial small vehicle container area*. These containers when filled are hauled to the tipping area for disposal. The location of the *non-commercial small vehicle container area* may be changed as needed to accommodate facility operations.

Vehicles entering the facility are weighed or measured prior to entering the disposal area. Upon completion of acceptance procedures described in the QA/QC Program for Waste Acceptance (Appendix K of the Permit Renewal Application), the vehicles are directed to either the active disposal area or

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the non-commercial small vehicle container area. Haulers not familiar with the facility are provided with verbal instructions and their loads are assessed for the specific acceptance requirements. Signs instruct drivers as to speed limits, site precautions, movement of traffic, and directions to the working face of the active landfill cell to facilitate uniform traffic flow.

Industrial process solid wastes that require improvements in their physical characteristics for ease in handling are mixed with a solidification agent or other non-hazardous wastes (e.g. fly ash, kiln dust or similar products). The handling, mixing and details of disposal methods are evaluated by physical testing. Solid wastes that are difficult to compact may require mixing with sand, silt, clay, or other material. The proper mix is determined by physical testing in the laboratory and/or by field demonstration.

Refuse delivered to the site in loose form and containing items such as appliances or bulky containers may be segregated, recycled or reused. Open burning of refuse will not be done at Colonial Landfill as a waste handling method. No solid waste shall be deposited in standing water, and all waste will be deposited in the smallest practical area, spread and compacted in layers approximately two feet thick, or, if baled, will be stacked and covered daily.

The waste acceptance and testing procedures for receiving domestic sewage sludge, industrial solid waste, incinerator ash or non-hazardous petroleum contaminated media and debris generated by underground storage tank corrective actions have additional waste acceptance requirements under LAC 33:VII. Solid Waste Regulations, including Section 521, 709, and 711. The program specifically provides pre-acceptance procedures to determine the acceptability of a waste pursuant to facility permit conditions, operational capabilities, and state and federal regulations.

Cell Filling Sequence

Filling within a cell proceeds in approximately 20-foot-high by 150-foot-wide sections, and, in general, begins on the high end and proceeds toward the opposite end of the cell, which is lower in elevation. The development cycle of each cell is to reach approximate final grades within a cell prior to filling within the next cell. This may be highly dependent on site and weather conditions at the time these elevations are reached. The unloading area is maintained to facilitate side-by-side unloading when practical, without undue delay due to equipment operations. As the permitted height is attained, interim cover and interim compacted cover is placed over the appropriate sections of the disposal area.

Largest Area of Landfill Requiring Final Cover

A major site development objective is to manage the refuse filling such that the finished grades are achieved on a progressive basis, and then final covered and vegetated as soon as practical. In this way, closure occurs

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throughout the life of the site and no area that has been brought up to final grade will remain without the required final cover for more than a few months. The largest area of the landfill unit planned for requiring final cover for the landfill footprint is approximately 20 acres. Final cover installation will be initiated and completed for this 20-acre area within 30 to 90 days after final grades are reached, following final receipt for solid wastes in the 20-acre unit, unless, due to inclement weather, the administrative authority grants an extension.

Within a few months after final cover is applied, the area will be seeded. Areas that are covered, closed, and are growing vegetation will be maintained in an aesthetically pleasing manner. Periodically, areas that have received final cover and have been vegetated will be inspected for spongy locations, erosion, vegetative stress, *etc.* and necessary corrective actions will subsequently be taken.

The final cover placed on the landfill will be maintained for a minimum of 30 years after closure. Maintenance will include inspection of the vegetative cover, as needed, and inspections of the cover for evidence of burrowing, erosion, settlement, subsidence, or other events, as specified in LAC 33:VII.711.F.3.a. If any problems associated with the cover are identified, they will be subsequently repaired to maintain the integrity of the cover. The gas collection and treatment or removal system and gas monitoring system will be maintained and operated throughout the post-closure monitoring period until gas production reduces to minimum levels. The groundwater monitoring system will be maintained and monitored during the 30-year post-closure period.

Any solid waste generated during the closure will be disposed in the remaining disposal area. Upon final capping of all on-site disposal areas, residuals will be stored in containers and transported off-site for disposal.

E. Will this facility replace an outmoded/worse polluting one?

The Colonial Landfill has been in existence since 1984 and replaced the outmoded Ascension Parish Dump, which began operation in 1973.

F. What consumer products are generating waste to be disposed? Are there alternative products that would entail less hazardous waste generation?

A wide range of consumer products generate the household waste disposed in the landfill. Continuing development of these products is resulting in formulations that are more benign than those in previous versions.

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4.0 Are there any alternative sites, which would offer more protection to the environment than the proposed facility site without unduly curtailing non-environmental benefits?**A. Why was this site selected?**

- 1. Specific advantages of the site;**
- 2. Were other sites considered and rejected?**
- 3. Is the location of the site irrevocable; i.e. would denial of permit based on site preclude the project?**

Former disposal areas operated by the Parish were required to close or upgrade after promulgation of RCRA Subtitle D regulations. According to the *Solid Waste Management Plan*, dated March 1994 developed by the LDEQ, the number of landfills operating in Louisiana decreased from 850 open dumps in 1981 to only 30 permitted landfills in 1993.

During the siting of the original facility, the location was selected due to the proximity to the Ascension Parish Dump (adjacent), proximity of the Highway 73 and Interstate 10, availability of land, and central location for the project service area. Other sites considered at the time did not offer the same level of commercial viability and environmental protection. The continued operation of the existing site is most protective of the environment because the attributes of the property (geology, hydrology, etc.) are known to be protective of the environment. Accordingly, the expansion of the existing facility will continue to offer better location characteristics than alternate existing or new sites. Since the permit renewal application is for the Colonial Landfill, the site will utilize existing infrastructure including roads, buildings, pipelines, and treatment facilities. Impacts to the adjacent areas have been realized through the development of the existing facility, and any additional impacts will be minor. The selection of an alternate site would preclude the project, since the construction of site infrastructure at a new location would be cost prohibitive and the economic model would not be workable. The current site has minimal residents in the vicinity and therefore provides little impact on neighbors. The proposed renewal will do little to change this fact. Alternatively, if a Greenfield site were selected, new neighbors and properties could be impacted.

B. Is the selected site in or near environmentally sensitive areas?

- 1. Wetlands**
- 2. Estuaries**
- 3. Critical habitat**
- 4. Historic or culturally significant areas**

Wetlands under the jurisdiction of the United States Army Corps of Engineers (USACE) are present on the site. However, the wetland

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functions have been impaired because of recent silvicultural activity that has decreased the wetland quality. There are no estuaries on or adjacent to the project site.

Threatened or endangered species, critical habitats, or cultural resources known are not known to be present on the site. There are no Indian mounds, antebellum homes, tourist attractions, campgrounds, or parks on or adjacent to the project site.

C. What is the zoning and existing land use of the prospective site and nearby area?

1. **Is the site located near existing heavy industrial, chemical process or refinery operations?**
2. **Is there a precedent for chemical contamination near the site or is the soil and water pristine?**
3. **Is the area particularly noted for its esthetic beauty?**

The property's use as a landfill is approved by the Ascension Parish Government. Existing land use within a three-mile radius of Colonial Landfill has been estimated based on available maps, published information, an area visual reconnaissance and through general knowledge of Ascension Parish and the surrounding area. Based on this information, the land use for the area within a three-mile radius of the facility, by approximate percentages, is as follows:

Undeveloped	56%
Residential	3%
Agricultural	34%
Other commercial	0.1%
Health care facilities and schools	0%
Industrial/manufacturing	4%
Recreational	0%
Other (transportation/communication)	3%

There are no heavy industrial operations in the area of the facility or expansion area. However, the currently closed Ascension Parish Landfill adjacent to the facility was neither designed nor operated in accordance with current environmental protection standards.

The area is typical, unmanaged Louisiana forestland and is not noted for its aesthetic beauty.

D. Is the site flood prone?

1. **Is the site in a flood plain?**
 - a. **How current are the maps used to make flood plain determinations?**
 - b. **What is the elevation of the site?**

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- c. **Is diking required or desired to provide flood protection?**
 1. **What is the design height of the dike?**
 2. **How is the dike protected from erosion?**
 3. **What frequency and design storm was used?**
 4. **Is the access to the site over or through dikes?**
2. **Is the site hurricane vulnerable?**
 - a. **Is the site in an area subject to storm surge?**
 - b. **What are the design storm specifications?**
 - c. **Should damage from wave action be considered?**
 - d. **For what levels of wind speed is the facility designed?**

The footprint of the Colonial Landfill is located within the 100-year floodplain. This was determined by reviewing Flood Insurance Rate Maps (FIRM) Community Maps 220013-140D (revised January 20, 1993) from the Federal Emergency Management Agency (FEMA). The site is located within Flood Zone A, below + 5.0 feet MSL. The perimeter levee system has been constructed to an approximate elevation of +8.0 feet MSL and protects the area within the facility boundaries from being inundated by a 100-year storm event. The interior perimeter drainage ditch is sized to carry the runoff calculated for the 25-year storm. The exterior perimeter ditch and levee system were designed as a dual system to redirect storm water around the site to the Panama Canal and to prevent run-on onto the site.

The site is located near the uppermost point of an extensive backwater system that drains to the northeast to Lake Maurepas. The backwater areas are bounded on the south and west by the ridge formed by the Mississippi River. Due to the extensive size of the backwater area in proportion to the raised area of the landfill, no significant increase in the water elevation will occur.

The Colonial Landfill is not located in a coastal area; thus storm surge and wave action due to hurricanes are not potential threats. The facility will be designed to withstand high wind speeds utilizing current industry design standards. Emergency preparation plans will be in place to protect the facility during hazardous weather.

E. Is groundwater protected?

1. **Are aquifers or recharge area underlying the site used for drinking water?**
2. **What is the relationship of the site to the water table?**
3. **What wells exist in the area?**
4. **What is the flow rate and direction of the groundwater flow?**
5. **What is the groundwater quality in the underlying aquifers?**
6. **Is there a hydraulic connection between the aquifers?**

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The NORCO Aquifer is located below the site with the top of the aquifer located approximately 200 feet below the site and extending down to approximately 400 feet below the site. The Norco Aquifer is located under much of this part of Ascension Parish. However, just to the southeast of the site, the NORCO Aquifer becomes salty. The thickness of the NORCO Aquifer below the site is approximately 200 feet with the upper surface of the Aquifer being located approximately 200 feet below the surface.

There are no known aquifer surface recharge areas at the site or within 1,000 feet of the site perimeter. The Mississippi River is thought to recharge the aquifer below this site; however, the Mississippi River is more than 1,000 feet from the site and drainage from the site does not flow toward the Mississippi River.

Five groundwater-bearing zones have been identified in the upper 60 feet bgs underlying the site. Zone 1 is the uppermost permeable zone and is typically located near ground surface to a depth of -12 feet MSL. This zone is laterally and structurally inconsistent across the facility. The individual permeable units that are included in this zone are not likely to be hydraulically connected. This zone is currently being monitored by one well, W-4R. (Note: Monitoring well W-2 was screened in a non-permeable clay unit located between -10 feet MSL and -20 feet MSL). A potentiometric map is not applicable to Zone 1.

Zone 2, also comprised of relatively inconsistent, water bearing permeable units is located at approximately -20 feet MSL. This zone is located entirely above the base of the slurry wall surrounding the existing landfill footprint. As described in the permit renewal application, the wall affects the groundwater flow within the zone. Groundwater flow is inward or towards the facility. Generally, flow outside the slurry wall is in a northerly direction. Additionally, based on the proximity of this zone to the maximum depth of excavation (-31 feet MSL), Zone 2 may have been largely excavated within the boundaries of the slurry wall (particular across the southern half of the existing landfill).

Zone 3, located at approximately -40 feet, MSL, appears to be the most continuous permeable unit at the site. This zone is largely beneath the maximum base of excavation (-31 feet MSL) and is recognized as the uppermost aquifer. Because Zone 3 is located both above and below the slurry wall, groundwater flow is affected. Potentiometric maps indicate a northerly flow direction outside the wall. Potentiometric data from monitoring well W-16, located inside the slurry wall, indicate flow is also inward or towards the existing landfill.

Zone 4 is found at approximately -50 feet MSL. The zone is more continuous across the southern half of the site than the northern half. No

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wells are currently monitoring this zone; therefore, potentiometric maps are not applicable.

Zone 5 is located at approximately -60 feet MSL. The zone is largely continuous across the southern half of the site where the zone appears to be part of a channel sand sequences. Previously, three wells (W-22, W-8B, and W-21) monitored this zone. Potentiometric maps show groundwater flow is northerly and appears to be unaffected by the slurry wall.

The general direction of flow for Zone 2 is inward towards the facility. Zone 3 also has flowed inward, but is generally to the north. Zone 2 and Zone 3 are both affected by the slurry wall. Interpretation of the hydraulic gradients in these zones is a result of extrapolating groundwater contours across the slurry wall; two interior wells (W-16 and W-17) provide some basis for extrapolation. The potentiometric mapping of Zone 5 indicates that groundwater flow is in a northerly direction. Flow rates in Zones 2 and 3 are on the order of 0.2 to 1.0 feet per year. Zone 5 has a flow rate on the order of 0.5 to 5.0 feet per year.

F. Does prospective site pose potential health risks as defined by proximity to?

1. Prime agricultural area (crop or pasture land)
2. Residential area
3. Schools or day care centers
4. Hospitals or prisons
5. Public buildings or entertainment facilities
6. Food storage area
7. Existing community health problems that may be aggravated by operation of additional hazardous waste disposal capacity

As discussed previously in IV. C., approximately three-quarters of the area surrounding the site is undeveloped. Limited residential, commercial, recreational, and public use properties exist in the vicinity of the facility.

The facility will not accept hazardous waste and has strict procedures in place to prevent their inadvertent receipt. Thus, existing community health problems, if any, would not be aggravated by the operation of the facility.

G. Is air quality protected?

1. Is the site within an ozone or non-attainment area?
2. What contaminants are likely to be generated at the site?
3. What protection is afforded from each contaminant generated by the site?
4. What is the potential for unregulated emissions?

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5. **What plans are implemented to provide for odor control?**
6. **Who will be affected by emissions?**
 - a. **What is the direction of the prevailing winds?**
 - b. **Describe the expected frequency of "bad air" conditions.**
7. **Describe the control of vapors at various stage of process.**

The operations at a sanitary landfill have a very low potential for creating toxic air emissions. Ascension Parish and four other surrounding parishes are in an ozone non-attainment area. This non-attainment area is primarily a result of the heavy industry located along the Mississippi River corridor.

The decomposition of non-hazardous solid waste generates methane and a small fraction of other compounds. In accordance with EPA guidance, it is estimated that landfills that receive municipal and industrial waste have a non-methane fraction of approximately 0.4 %. However, site specific testing at the existing landfill indicates that the non-methane fraction is less 0.05%. Currently these emissions are not controlled. Although the emissions are minimal, the facility has an extensive gas collection and control system that is under design and anticipated to be installed in the next year. The system will consist of a series of gas collection wells networked to a flare(s) or reciprocating engine(s). The flare(s) or reciprocating engine(s) will consume the generated methane and other trace compounds and reduces their emissions by over 75%. This will result in the expanded operation having significantly less emissions than the current operation.

Odors (and emissions) will be controlled through the application of daily cover over the working face of the landfill. As areas reach the design elevations, interim and final covers will be installed.

Due to the low potential for air emissions and variable winds, a designated population group that would be affected by potential air emissions from the facility could not be identified. A "bad air" condition caused by site operations is not likely to occur.

As described above, air emissions will be controlled through the use of a daily cover and the installation of a gas control system. The gas control system will be installed as each area reaches it final elevation.

- H. **Have physical site characteristics been studied; what has been done in terms of a geotechnical investigation?**
1. **Site geology**
 2. **Hydrology**
 3. **Topography**
 4. **Soil properties**
 5. **Aquifer location**
 6. **Subsidence problems**
 7. **Climatic conditions**

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A comprehensive geotechnical investigation and design that includes site geology, hydrology, topography, soil properties, aquifer locations, and potential subsidence problems has been prepared and included in the permit renewal application. The investigation and design has been prepared and certified by an engineer registered in Louisiana.

The effect of climatic conditions for the site has also been studied. Protections against flooding and catastrophic events (hurricanes, tornadoes, and fires) have been included in the facility design. Designed features include drainage features, buffer zones, protection levees, proper sloping, and reduced working faces.

5.0 "Are there mitigating measures which would offer more protection to the environment than the facility as proposed without unduly curtailing non-environmental benefits?"

A. Is this facility part of master plan to provide waste management? Whose plan?

- 1. How does it fit into the plan?**
- 2. What geographical area is served by the plan?**

As discussed previously, currently there is no integrated solid waste management plan for Louisiana or the area in and around Ascension Parish. However, this facility has been planned with the full understanding and approval of the local governing authority that entered into a public-private contractual agreement with BFI. One purpose for the agreement is to provide solid waste facilities for the proper and environmentally sound disposal of solid waste on a long-term basis for Ascension Parish as well as other areas that can be economically served.

B. Does this facility fit into an integrated waste management system? (Reduction, recovery, recycling, sales tax, exchange, storage, treatment, disposal)

- 1. On-site**
- 2. Regional**

At this time, the government has not developed a formal integrated waste management plan, but Colonial Landfill is part of an integrated waste management system serving the local and regional communities. As the economic environment continues to improve for waste reduction, recovery, and recycling, the need for "state-of-the-art" strategically-located sanitary landfills will continue for the proper disposition of the residuals that do not have economic value. When the local community and the state develop more comprehensive waste management plans, Colonial Landfill will continue to play an important role by providing economically and

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environmentally sound disposal that will allow the implementation of a formal plan to proceed rapidly.

C. Can waste be disposed in another fashion (way)?

1. **Technology limitations**
2. **Cost Factors**
3. **Other reasons**

As detailed above, alternate technologies are discussed in III A. The combination of technology limitations and cost limit the use of other disposal methods. Additionally, all known disposal methods generate some residual that must be landfilled.

D. What quality assurance control will be utilized to protect the environment?

1. **Plans for lab work**
2. **How are out-of-spec wastes handled**
3. **What happens to rejected wastes**
4. **Treatment stabilization**
5. **Segregation of noncompatible wastes**
6. **Handling of containerized wastes**

A detailed Special Waste Acceptance Plan is included in Appendix K of the permit renewal application. The QA/QC plan specifically provides for pre-acceptance procedures to determine the acceptability of waste pursuant to permit conditions, operational capabilities, and state and federal regulations. The program outlines procedures to monitor incoming loads and verify that the incoming waste complies with pre-acceptance waste characteristics and provisions in the facility permit.

Pre-acceptance procedures determine the acceptability of a waste or waste stream to ensure that it does not contain hazardous waste or free liquids. The generator must provide pertinent physical and chemical data as well as other information. Pre-acceptance information will be collected, and the stream will either be accepted or rejected for disposal.

Once approved for disposal, the generator can schedule disposal. When shipments arrive they will be weighed and the driver's documentation will be reviewed. In addition, facility personnel will perform random inspections of waste material to confirm the physical characteristics indicated on the previously approved pre-acceptance information. Additionally, random inspections will also occur in the area of the working face to ensure that potentially hazardous material is not being received. "Fingerprinting" methods will also be utilized on selected waste to confirm the pre-acceptance information. Methods may include but are not limited to color, texture, pH, paint filter testing, etc. Any load that fails

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"fingerprinting" will be rejected and returned to the generator. The generator will also be notified of the waste discrepancy. If it is determined that a non-conforming waste was placed in the landfill, the load or loads will be retrieved from the cell.

Colonial Landfill has the ability to stabilize materials that do not pass the paint filter test. Fly ash, kiln dust, or similar non-hazardous products will be used as solidification agents. The agents will be mixed with the waste until the material passes the paint filter test.

Since no hazardous or reactive waste will be accepted, segregation of non-compliance wastes is not applicable. Wastes that are containerized will be pre-accepted and inspected in accordance with the procedures in Appendix K of the Permit Renewal Application (*i.e.* no free liquids and no hazardous waste). The location of the containers will be noted in the operating record.

E. Innovative techniques used to control release of waste or water constituents into the environment.

1. **Surface impoundment**
2. **Land application treatment**
3. **Landfill (burial)**
4. **Incinerator**
5. **Container storage**
6. **Tanks**

All active landfill areas will have an approved composite liner system. In addition, landfill areas will be covered daily to prevent material from being windblown and to preclude vectors.

Containers will be used for assisting residential disposal and minimizing traffic on the working face. The only tankage anticipated is for fuel for landfill equipment, and for leachate, condensate and/or contaminated storm water storage prior to pumping off-site for treatment or to a future wastewater treatment system.

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LAC 33:VII.523 ATTACHMENT 1

**ECONOMIC ANALYSIS OF THE CONSTRUCTION AND
OPERATION**

BFI WASTE SYSTEMS OF LOUISIANA, LLC

**An Economic Analysis of the Construction And Operation
Of Colonial Landfill by BFI in Ascension Parish, Louisiana**

James A. Richardson¹
Alumni Professor of Economics
Louisiana State University

I. INTRODUCTION

BFI Waste Systems of Louisiana, LLC (BFI) is proposing constructing on an additional 86.5 acre tract of land to increase the capacity of the existing Colonial Landfill in Ascension Parish, Louisiana. Colonial Landfill currently is a solid waste landfill located on 173 acres of land.

Waste disposal is part of the production process, if it be industrial waste, commercial waste, public enterprise waste, or residential waste. Companies, governmental organizations, and citizens cannot produce and consume without having a legitimate place to send their solid waste. The availability of solid waste landfills provide social and economic benefits that can be categorized as follows: (1) income and employment effects directly related to the construction of the landfill; (2) income and employment effects directly related to the operation of the landfill; (3) any and all ripple effects on other parts of the economy because of the direct activity at Colonial Landfill; and, (4) the economic benefits associated with the industrial concerns, commercial establishments, governmental organizations, and private residences that have a demand for solid waste management facilities in order to complete the production and/or consumption process.

BFI, as a private concern, foresees a demand for a solid waste landfill because of the waste being created by municipalities, parishes, schools, industrial concerns, commercial establishments, residential developments, and private residences. The production process is hampered if the waste management activity is not available when it is required. In the extreme case, companies and governmental organizations may have to curtail business and public activity or these agencies have to discover alternative ways of disposing of solid waste. Just as businesses, governmental organizations, and residences create solid waste in the normal process of producing and consuming resources, a community must have a viable waste management plan in place. Otherwise, other activities will be curtailed or delayed or totally eliminated.

This report focuses on estimating the economic benefits associated with the construction and operation of a solid waste landfill in Ascension Parish. The report also focuses on the "need" of a landfill. The report is divided into three major sections and several subsections. The first section describes the growth of Ascension Parish relative to the rest of the state and identifies major employers located in the parish. The second section deals with the economic benefits of constructing and operating a solid waste landfill in Ascension Parish. The subsections within this section deal with methodology, construction benefits, and the economic benefits of operating the facility. The third section deals with the need for a landfill in the southern part of Louisiana.

¹ Dr. Richardson is solely responsible for the analysis and findings in this report.

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II. ECONOMIC ACTIVITY IN AND AROUND ASCENSION PARISH, LOUISIANA***Parish Population, Income, and Growth***

Ascension Parish had an estimated population of 81,792 in 2002, a 6.7 percent growth over 2000. From 1990 to 2000, the population in Ascension Parish grew by 31.6 percent. Population in Louisiana grew by only 5.9 percent during this decade. The overall Baton Rouge Metropolitan Area during this decade grew by approximately 17.8 percent with Livingston Parish growing by 30.2 percent, East Baton Rouge Parish growing by 8.6 percent, and West Baton Rouge Parish growing by 11.2 percent. Population growth was extremely large in Ascension and Livingston Parishes during the 1990s and continuing into the 2000s. Population growth in the Baton Rouge Metropolitan Area was almost three times population growth in the overall state of Louisiana. Population growth in Ascension Parish was even more pronounced being about 5.4 times greater than the growth of population in Louisiana.

The largest private employers in Ascension Parish are BASF and Brown and Root. Other major private employers in Ascension Parish are Shell, Rubicon, Becon Construction, and AKM. The largest public employer is the Ascension Parish School System with over 1,000 employees. Ascension Parish serves as a residential community for persons working in the Baton Rouge Metropolitan Area and as a base for jobs for persons living in Ascension Parish and for residents living in surrounding parishes.

III. ECONOMIC BENEFITS OF CONSTRUCTION AND OPERATION OF SOLID WASTE LANDFILL IN ASCENSION PARISH***The Methodology of Estimating the Economic Impact***

The economic methodology used to trace and estimate the economic impact of the construction and operation of a solid waste landfill on the local and state economy is the input-output (I/O) model, an economic model that describes interindustry relations within a state and region. The I/O model mathematically describes the transactions necessary among various industries as these industries produce goods and services for consumers, other businesses, and governmental organizations. The I/O model provides a systematic method of quantifying the economic impact of a change in one industry on all of the other industries operating in the state and local economies.

The economic impacts captured by the I/O model fall into two categories—direct and indirect (or multiplier) effects. The direct effects are the most obvious and the most easily identified. The direct effects are the direct purchases of inputs for the construction and operation of the facility. These direct purchases include the purchase of labor and the subsequent payroll and the purchase of goods and services. The direct effects will have a larger impact on the economy—namely, the direct effects will initiate the indirect effects or the multiplier effects. It might be useful to think of the local economy or the state economy as an “economic pond.” A large stone, called the Colonial Landfill in Ascension Parish, is tossed into the pond. The construction expenditures and the operating dollars will cause a large splash, but these expenditures

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will also cause ripples to be sent out to the edge of the pond. These ripples are the indirect or multiplier effects that are traced to the direct purchases by Colonial Landfill.

For further explanation the construction of the landfill will lead to the purchase of construction materials. The firms selling these construction materials to the construction company building the landfill will require additional inputs from its suppliers, and these suppliers will augment their orders from their suppliers, and on down the line. These companies will also have payrolls and employees working for them. Employees working for the construction company and the companies working for the construction company will also affect the local and state economy by spending their earnings in grocery stores, service stations, department stores, drug stores, and so on. The direct effect of constructing and operating the landfill eventually affects the business activity at convenience stores, grocery stores, other retail establishments, insurance agents, and so on down the line.

The Regional Input-Output Modeling System (RIMS II), as created and maintained by the US Department of Commerce, was used in this analysis. The version used in this analysis has been adapted for application to the Louisiana and local economy. This technique is the most widely used method for estimating the indirect effects related to the construction and operation of any facility. The I/O model produces information on business activity, jobs created, and personal earnings associated with these newly created jobs.

Economic Benefits Associated with Construction of Landfill

The construction of the landfill is scheduled to proceed as follows: (1) the landfill will be constructed in phases or cells with a 10 to 12 acre cell being constructed, one at a time; (2) it is estimated that it will take 150 to 180 days to construct each cell; (3) the cost of constructing each cell is estimated to be \$195,000 per acre; and, (4) other costs associated with producing each cell will be \$167,000 per acre with these expenditures being for a slurry wall, pond relocation, road construction, and security access. For this analysis it is estimated that the overall project will take four years with BFI spending \$7.7 million per year on construction activity.

This direct spending of \$7.7 million per year will lead to the following direct and indirect economic impacts statewide: business activity of \$16.8 million; personal earnings of \$5.3 million; and 129 new jobs being created and supported. In Ascension Parish the direct and indirect economic impact is estimated to be as follows: \$9.52 million in business activity; \$3.35 million in personal earnings; and, 67.2 new jobs. A detailed accounting of the new business activity, personal earnings, and new jobs by industries affected by the construction of the landfill is illustrated in Table 1.

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Table 1
Economic Impact of Construction of Landfill in Ascension Parish
(Construction Expenditures: \$7.7 million per year for four years)

Industry	Business Sales (in millions)	Personal Earnings (in millions)	Jobs Created and Supported
Statewide Impact			
Agriculture and Mining	\$0.22	\$0.05	2
Construction	\$7.93	\$2.94	52
Manufacturing	\$1.69	\$0.32	8
Transportation, Communications, and Utilities	\$0.84	\$0.21	5
Wholesale and Retail Trade	\$1.52	\$0.54	22
Financial Services	\$1.3	\$0.16	5
Business and Personal Services	\$3.27	\$1.04	35
TOTAL	\$16.77	\$5.26	129
Ascension Parish Impact			
Agriculture and Mining	\$0.02	\$0.005	0.2
Construction	\$7.75	\$2.870	50
Manufacturing	\$0.33	\$0.064	2
Transportation, Communications, and Utilities	\$0.42	\$0.104	3
Wholesale and Retail Trade	\$0.38	\$0.135	6
Financial Services	\$0.13	\$0.016	1
Business and Personal Services	\$0.49	\$0.156	5
TOTAL	\$9.52	\$3.350	67.2

Source: RIMS Input/Output Model and author.

These economic benefits include the jobs and business activity directly associated with the construction of the landfill and the jobs and business activity associated with the spending behavior or suppliers of the material to the construction of the landfill and the spending behavior of the employees of all of these companies. These benefits will last only as long as the construction project is ongoing. In this case, the expected duration

BFI WASTE SYSTEMS OF LOUISIANA, LLC

of the construction of the 85-acre landfill is 4 years. Hence, these jobs and earnings will be around for 4 years.

Economic Impact of Operating the Landfill

The operation of the landfill will lead to the permanent creation of business activity, personal earnings, and jobs, or at least for the life expectancy of the landfill. BFI anticipates \$145 million in revenues for the life of the landfill, including the expansion area. This amounts to \$7.25 million per year assuming a 20-year life expectancy of the landfill. These recurring economic impacts, by industrial classification, are illustrated in Table 2. Statewide, business activity is expected to measure \$16 million, personal earnings \$3.95 million, and 118 new jobs being created. In Ascension Parish it is estimated that business activity will be \$8.74 million, personal earnings \$1.91 million, and 55.1 new jobs. The average wage, statewide, of these jobs will be \$33,374. The average wage parish-wide for the new jobs in Ascension Parish will be \$34,610.

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Table 2
Economic Impact of Operation of Landfill in Ascension Parish
(Operating Revenues: \$7.25 million per year after full expansion is completed)

Industry	Business Sales (in millions)	Personal Earnings (in millions)	Jobs Created and Supported
Statewide Impact			
Agriculture and Mining	\$0.15	\$0.03	1
Construction	\$1.77	\$0.66	17
Manufacturing	\$1.14	\$0.22	5
Transportation, Communications, and Utilities	\$8.21	\$1.67	48
Wholesale and Retail Trade	\$0.91	\$0.32	13
Financial Services	\$1.15	\$0.16	5
Business and Personal Services	\$2.64	\$0.89	29
TOTAL	\$15.97	\$3.95	118
Ascension Parish Impact			
Agriculture and Mining	\$0.02	\$0.003	0.1
Construction	\$0.44	\$0.17	4
Manufacturing	\$0.23	\$0.044	1
Transportation, Communications, and Utilities	\$7.30	\$1.46	42
Wholesale and Retail Trade	\$0.23	\$0.080	3
Financial Services	\$0.12	\$0.016	1
Business and Personal Services	\$0.40	\$0.134	4
TOTAL	\$8.74	\$1.907	55.1

Source: RIMS Input/Output Model and author.

IV. ECONOMIC BENEFITS FOR USERS OF LANDFILLS

Landfills exist because there is a demand for their services. Solid waste is created in the process of constructing and renovating plant facilities, public buildings, and residential housing; in the process of producing goods; and, in the process of

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consuming goods and services. Municipal solid waste is disposed of in landfills. Landfills are a necessary part of the production process. People and business enterprises produce the waste that needs to be properly disposed of and managed.

Ascension Parish had an estimated population of 81,792 in 2002, a 6.7 percent growth over 2000. From 1990 to 2000, the population in Ascension Parish grew by 31.6 percent. Population in Louisiana grew by 5.9 percent during this decade. The overall Baton Rouge Metropolitan Area during this decade grew by approximately 17.8 percent with Livingston Parish growing by 30.2 percent, East Baton Rouge Parish growing by 8.6 percent, and West Baton Rouge Parish growing by 11.2 percent. Population growth was extremely large in Ascension and Livingston Parishes during the 1990s and continuing into the 2000s. Population growth in the Baton Rouge Metropolitan Area was almost three times population growth in the overall state of Louisiana. Population growth in Ascension Parish was even more pronounced being about 5.4 times greater than the growth of population in Louisiana. This population growth means more governmental organizations and more jobs in these areas. It also means more waste.

Potential users of the landfill are listed in Table 3—these are people and business establishments in parishes in and around Ascension Parish. These data are based on 2002 **County Business Patterns** and the US Census as of 2003. People, businesses, and governmental organizations create solid waste. These data indicate the possible users of landfill—most of this use will be indirect. These persons and businesses will not take waste to a landfill, but will expect someone else to be able to take their waste to a landfill. The significance about Ascension Parish is its growth rate and this is also true for a number of parishes around Ascension. East Baton Rouge Parish, though not growing as fast as Ascension and Livingston Parishes, is still growing at almost three times the state's growth rate.

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Table 3
Users of Landfills
Business Establishments and Private Employment as of 2002
Population as of 2003

Parish	Business Establishments	Private Employment	Population
Ascension	1,639	24,761	84,424
Assumption	253	2,298	23,263
East Baton Rouge	11,412	209,893	412,447
Iberville	516	10,384	32,811
Livingston	1,353	12,418	102,046
St. Charles	903	18,080	49,313
St. James	306	5,395	21,118
St. John the Baptist	643	10,767	44,816
State	101,885	1,583,378	4,496,334

Source: US County Business Patterns, 2002; US Census 2003.

Another method of examining the need for a product is to evaluate its real price—that is, its price after adjusting for inflation. The price of disposing of solid waste has risen by 20 percent from 2001 through 2005. General prices have risen over this same period of time by about 8 percent. The real price of disposing of solid waste has risen. The rising real price of disposing of solid waste is another indicator that this resource is scarce and additional landfills are needed.

Having an accessible and competitive landfill reduces the cost of doing business in an area and the cost of living in an area. These are very tangible economic benefits that are directly related to the availability of a landfill. These are recurring benefits that last as long as the landfill is operating. In addition, the market system depends on competition to keep prices consumer-friendly. Another landfill provides competition in the waste management business.

From a market perspective the ultimate indicator of the need for a landfill is that private companies are willing to risk \$30 million over four years to construct the landfill and the additional expenses of closing the landfill if it fails. This decision suggests that the private company has done its market analysis and believes this investment will provide an acceptable rate of return. Companies do not put up \$30 million without a careful analysis of the market environment. Certainly, part of the market environment is the growth of this area in terms of population and business establishments.

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V. SUMMARY AND CONCLUSIONS

Disposing of solid waste is part of the production process. One method of disposing of solid waste is to dispose of them in a landfill. Constructing a landfill and operating a landfill provide employment and income benefits. In this case, the \$30.0 million investment over four years leads statewide to business activity of \$16.8 million; personal earnings of \$5.3 million; and 129 new jobs being created and supported for each of the next four years. In Ascension Parish the direct and indirect economic impact is estimated to be as follows: \$9.52 million in business activity; \$3.35 million in personal earnings; and, 67.2 new jobs for each of the next four years.

The operation of the landfill with annual revenues of \$7.25 million leads statewide to business activity of \$16 million, personal earnings of \$3.95 million, and 118 new jobs being created. In Ascension Parish it is estimated that business activity will be \$8.74 million, personal earnings \$1.91 million, and 55.1 new jobs. The average wage, statewide, of these jobs will be \$33,374. The average wage parish-wide for the new jobs in Ascension Parish will be \$34,610. These benefits will endure as long as the facility is operational.

Finally, the cost of disposing of solid waste has risen by about 20 percent over the last five years, while general prices have risen by only about 8 percent. The rising real price of disposing of solid waste is an indicator that more resources are required in this business activity. Part of the reason for the rising real price of disposing of solid waste could be the increasing population and business activity in and around Ascension Parish. Waste disposal is part of the production process, and this production process is driven by people and businesses.

BFI WASTE SYSTEMS OF LOUISIANA, LLC

TABLE 1

**SUMMARY OF PIEZOMETER/MONITOR WELL CROSS
SECTIONS**

TABLE 1

MONITOR WELL DATA
Summary of Piezometer/Monitor Well Cross Sections
BFI Waste Systems of Louisiana, LLC, Colonial Landfill, Sorrento, Louisiana

Well Owner #	Well Use	Zone Monitored	Well Depth (MSL)	Screen Interval (MSL)	Top of Casing Elevation (MSL)	Ground Surface Elevation (MSL)	Casing Size (in)	Drill Date	Latitude	Longitude	Up/Down Gradient
W-1	MONITOR	3	-33.80	-23.80 - -28.80	9.20	6.20	4	Aug-82	30:08:57	-90:51:53	Down
W-5R	MONITOR	2	-32.78	-20.28 - -30.28	12.10	9.72	4	Nov-92	30:08:43	-90:51:23	Down
W-8	MONITOR	3	-40.22	-30.22 - -35.22	7.78	4.78	4	May-83	30:08:50	-90:58:36	Down
W-8A	MONITOR	3	-42.10	-29.10 - -39.10	7.95	4.95	4	May-89	30:08:57	-90:51:44	Down
W-9	MONITOR	2	-33.80	-23.80 - -28.80	7.48	4.48	4	May-83	30:08:39	-90:58:27	Down
W-10R	MONITOR	2	-31.35	-18.85 - -28.85	10.99	8.65	4	Nov-92	30:08:55	-90:51:22	Down
W-11R	MONITOR	2	-37.14	-24.64 - -34.64	10.07	7.86	4	Dec-92	30:08:50	-90:51:52	Up
W-12	MONITOR	3	-48.31	-40.81 - -45.81	11.88	9.19	4	Oct-92	30:08:34	-90:51:52	Up
W-13	MONITOR	2	-33.82	-26.32 - -31.32	11.28	8.68	4	Nov-92	30:08:34	-90:51:44	Up
W-14	MONITOR	2	-27.57	-20.07 - -25.07	12.26	9.93	4	Nov-92	30:08:34	-90:51:26	Up
W-15	MONITOR	2	-31.14	-18.64 - -28.64	11.63	8.86	4	Nov-92	30:08:50	-90:51:22	Down
W-18	MONITOR	2	-33.78	-26.28 - -31.28	11.16	8.72	4	Nov-92	30:08:34	-90:51:36	Up
W-19	MONITOR	3	-43.60	-36.10 - -41.10	11.63	8.90	4	Nov-92	30:08:50	-90:51:22	Down
W-20	MONITOR	3	-52.13	-39.63 - -49.63	10.35	7.87	4	Dec-92	30:08:50	-90:51:52	Up
MW-23A	MONITOR	3	-39.93	-31.91 - -36.91	10.59	8.09	4	Nov-98	30:08:52	-90:58:51	Down
MW-24	MONITOR	3	-40.30	-31.52 - -36.52	10.98	7.98	4	Aug-98	30:08:54	-90:58:57	Down
MW-25	MONITOR	3	-44.59	-39.09 - -44.09	10.91	7.91	4	Aug-98	30:08:55	-90:51:22	Down
MW-26	MONITOR	3	-45.65	-38.65 - -43.65	11.35	8.35	4	Aug-98	30:08:42	-90:51:23	Down
MW-27	MONITOR	2	-26.46	-19.73 - -24.73	11.27	8.27	4	Aug-98	30:08:57	-90:51:37	Down
MW-28	MONITOR	2	-25.66	-20.16 - -25.16	10.84	7.84	4	Aug-98	30:08:57	-90:51:29	Down
CDM-24	MONITOR	3	-48.10	-37.60 - -47.60	6.90	1.90	2	Sept-04	30:08:20	-90:51:21	Up
CDM-25	MONITOR	3	-47.20	-36.70 - -46.70	7.80	2.80	2	Sept-04	30:08:20	-90:51:37	Up

BFI WASTE SYSTEMS OF LOUISIANA, LLC

TABLE 2

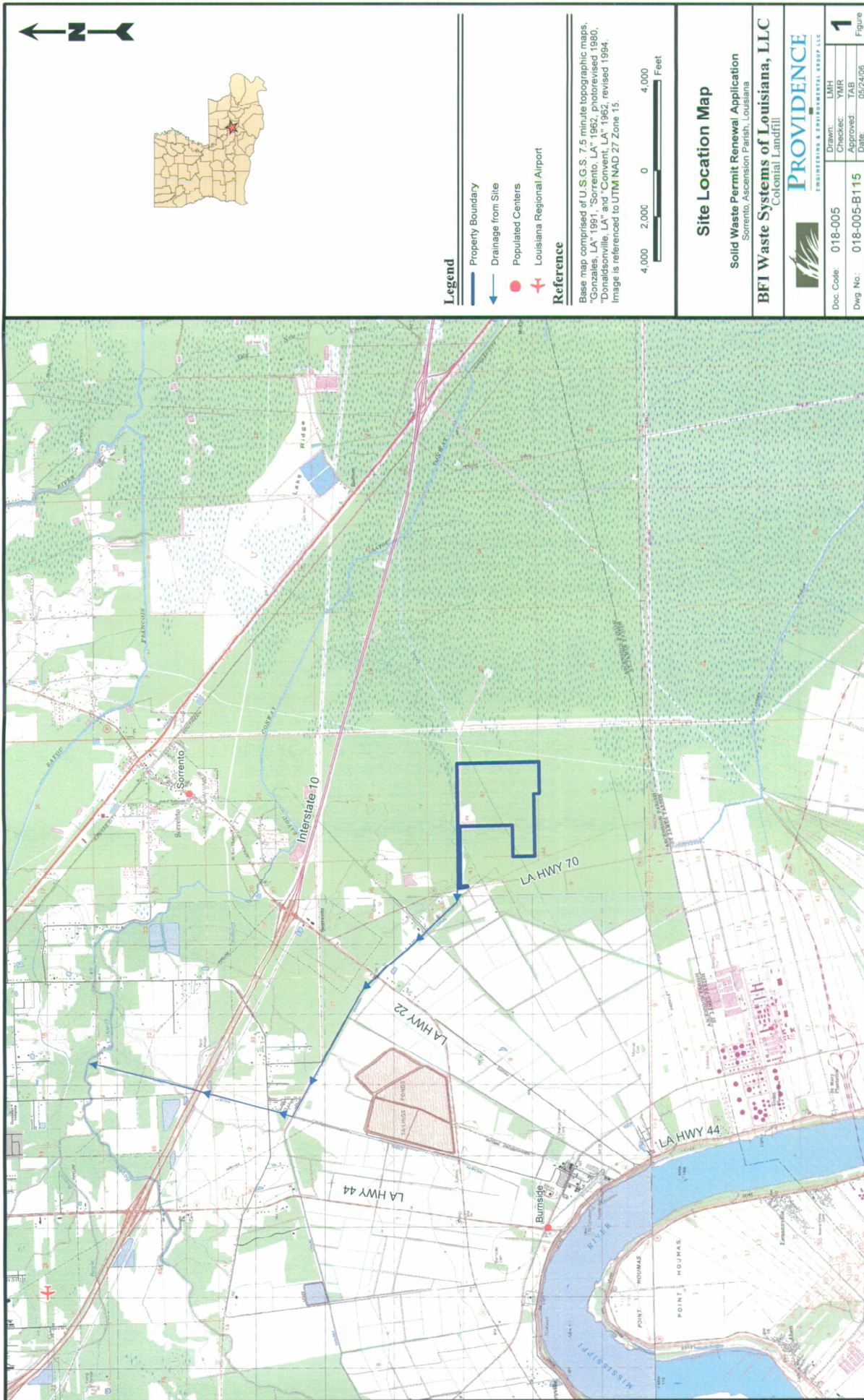
SUMMARY OF POTENTIOMETRIC ELEVATIONS

Table 2
1996 Quarterly Potentiometric Elevations (FT, MSL)
BFI Colonial Landfill
Sorrento, Louisiana

		Apr-96	Jun-96	Sep-96	Dec-96
ZONE 2					
	W-5R	0.69	-0.95	-0.45	0.95
	W-9R	0.77	-0.73	-0.68	0.62
	W10R	0.96	0.07	0.62	2.00
	W-11R	1.33	-0.01	0.36	1.93
	W-13	3.13	1.85	2.61	3.17
	W-15	1.25	-0.64	-0.14	1.27
	W-17	-1.91	-1.92	-2.55	-2.11
	W-18	0.33	-0.85	-0.01	0.51
Zone 3					
	W-1R	2.02	0.27	0.01	1.78
	W-8	1.82	0.38	0.13	1.62
	W-8A	1.70	0.33	0.13	1.59
	W-12	3.74	3.71	3.56	3.85
	W-16	-1.81	-2.06	-2.51	-1.78
	W-19	1.18	-0.66	-0.22	1.17
	W-20	1.24	0.00	0.34	1.85
Zone 5					
	W-8B	1.91	0.51	0.21	1.69
	W-21	1.80	0.13	0.20	1.68
	W-22	4.57	5.07	4.74	4.45

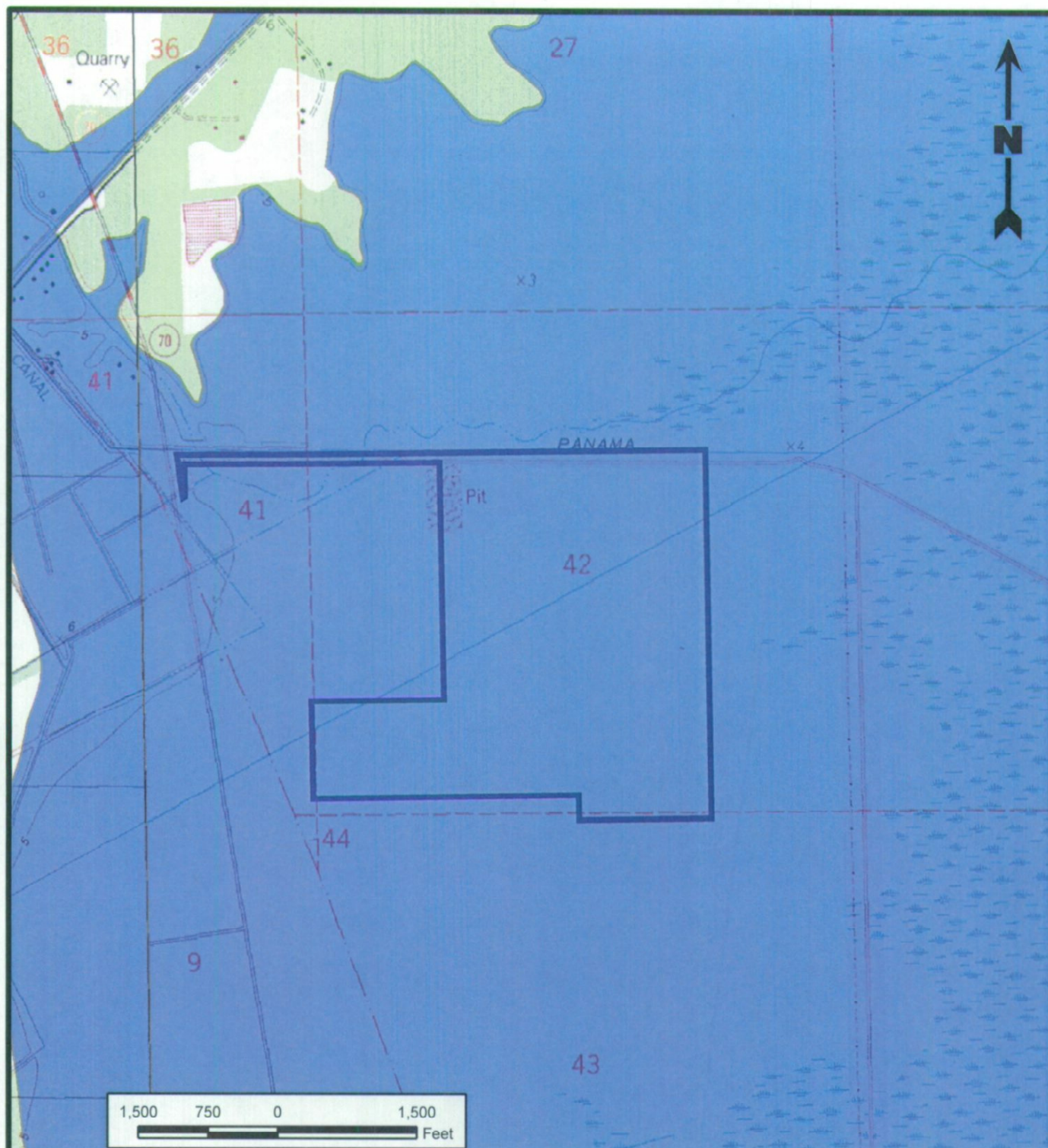
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FIGURE 1
SITE LOCATION MAP



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FIGURE 2
FLOOD ZONE MAP



Legend

- Property Boundary
- 100 Year Flood Plain (No Elevation)
- Area of Minimal Flood Hazard

Reference

Base map comprised of U.S.G.S. 7.5 minute topographic maps, "Gonzales, LA", 1991, "Sorrento, LA" 1962, photorevised 1980, "Donaldsonville, LA" and "Convent, LA" 1962, revised 1994.
Ascension Parish flood zone data obtained from Louisiana Oil Spill Coordinator's Office (LOSCO) 1999 dataset.

Flood Zone Map

Solid Waste Permit Renewal
Sorrento, Ascension Parish, Louisiana

BFI Waste Systems of Louisiana, LLC
Colonial Landfill



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2
Figure

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FIGURE 3
AERIAL PHOTOGRAPH



Legend

- Property Boundary
- Three Mile Radius

Reference

Base map comprised of 1992 aerial photograph. Image is referenced to UTM NAD 83 Zone 15.



Aerial Photograph

Solid Waste Permit Renewal
Sorrento, Ascension Parish, Louisiana

BFI Waste Systems of Louisiana, LLC
Colonial Landfill



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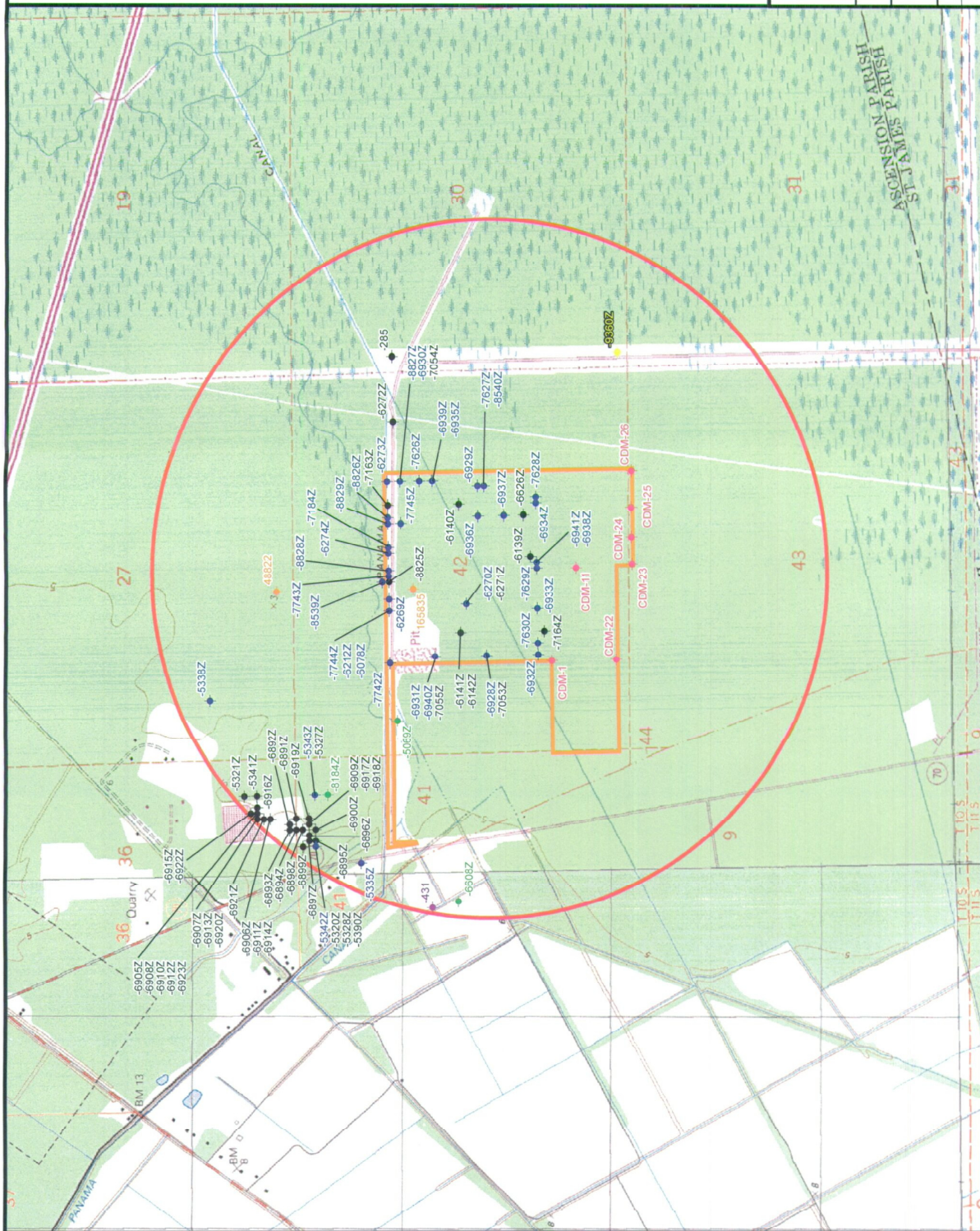
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Figure

BFI WASTE SYSTEMS OF LOUISIANA, LLC

FIGURE 4
WELL LOCATION MAP



Legend

- | | |
|--|--------------------|
| | Property Boundary |
| | One Mile Radius |
| | Water Wells |
| | Domestic |
| | Irrigation |
| | Monitor |
| | Plugged |
| | Public Supply |
| | Oil and Gas Wells |
| | 2004 Monitor Wells |

Reference

Base map comprised of U.S.G.S. 7.5 minute topographic maps, "Gonzales, LA", 1911, "Sorrento, LA", 1962, photorevised 1980, "Donaldsonville, LA" and "Convent, LA", 1962, revised 1994. Image is referenced to UTM NAD 27 Zone 15. Oil and gas well data obtained from Louisiana Oil Spill Coordinator's Office (LOSCO) 1999 dataset. Water well locations compiled from LADOTD registered water well data-server. Current as of 04/28/05.



Well Location Map

Solid Waste Permit Renewal Application
Sorrento, Ascension Parish, Louisiana

BFI Waste Systems of Louisiana, LLC
Colonial Landfill



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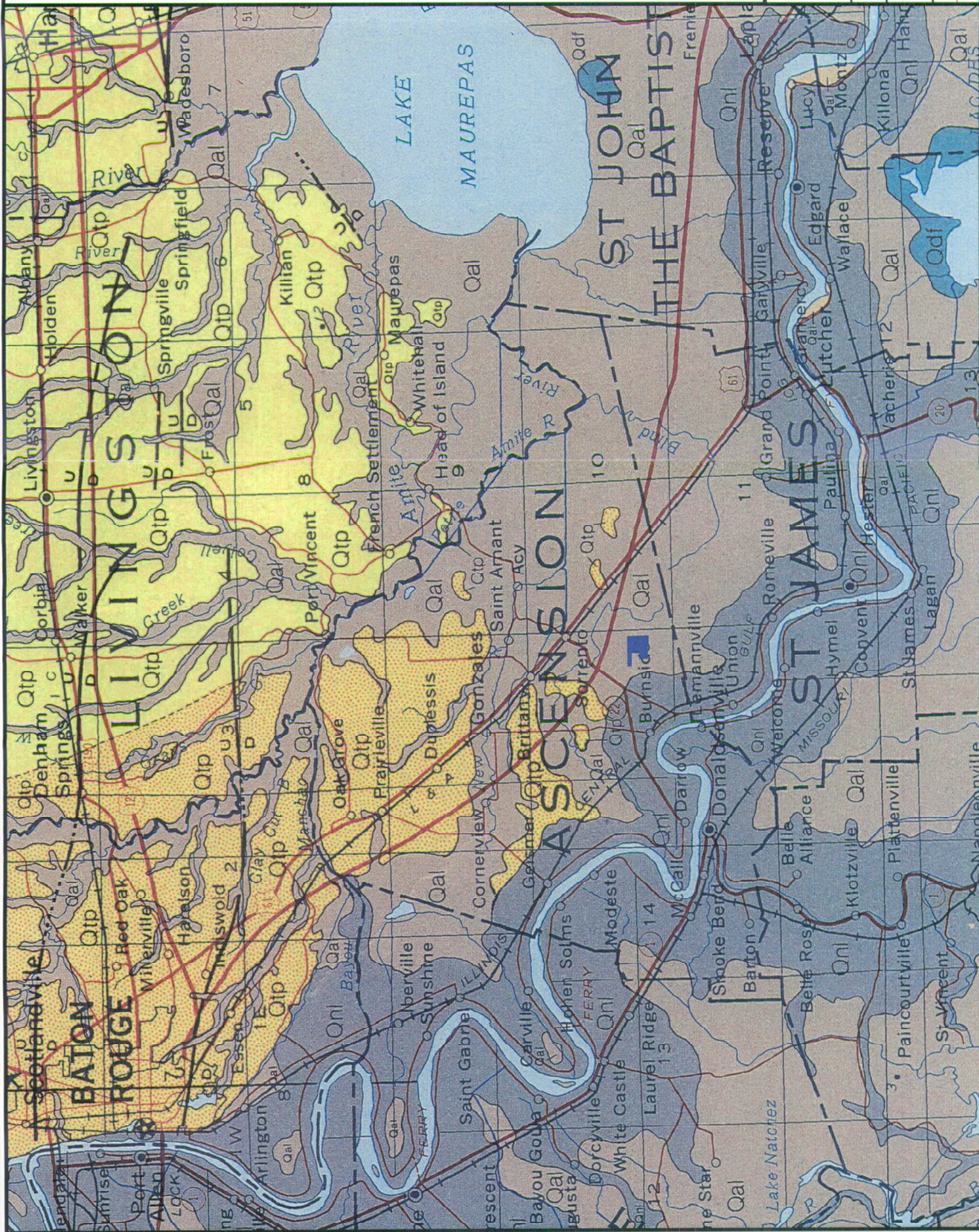
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Figure

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FIGURE 4A
FAULT MAP



Fault Map

Solid Waste Permit Renewal Application
Sorrento, Ascension Parish, Louisiana

BFI Waste Systems of Louisiana, LLC
Colonial Landfill

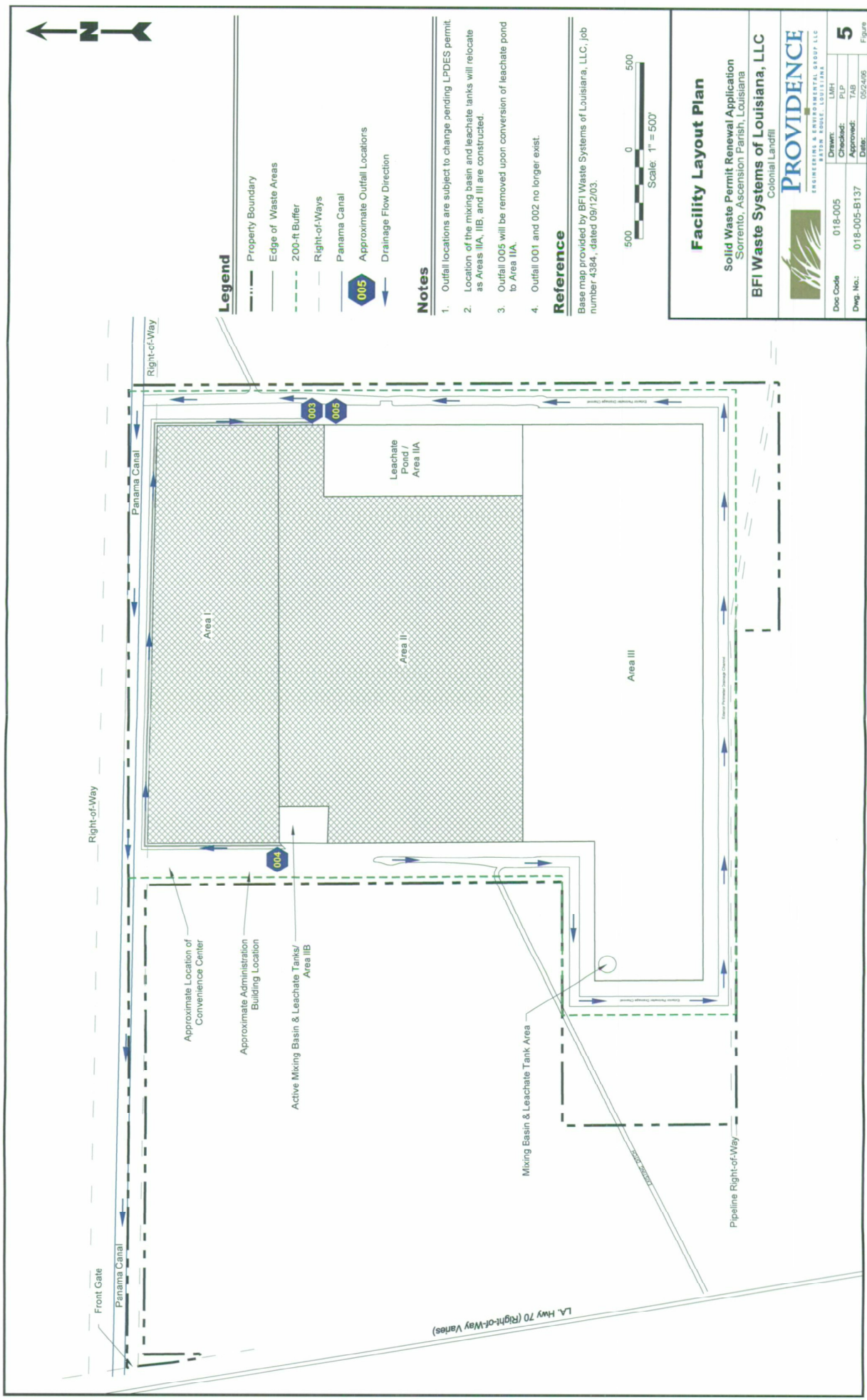


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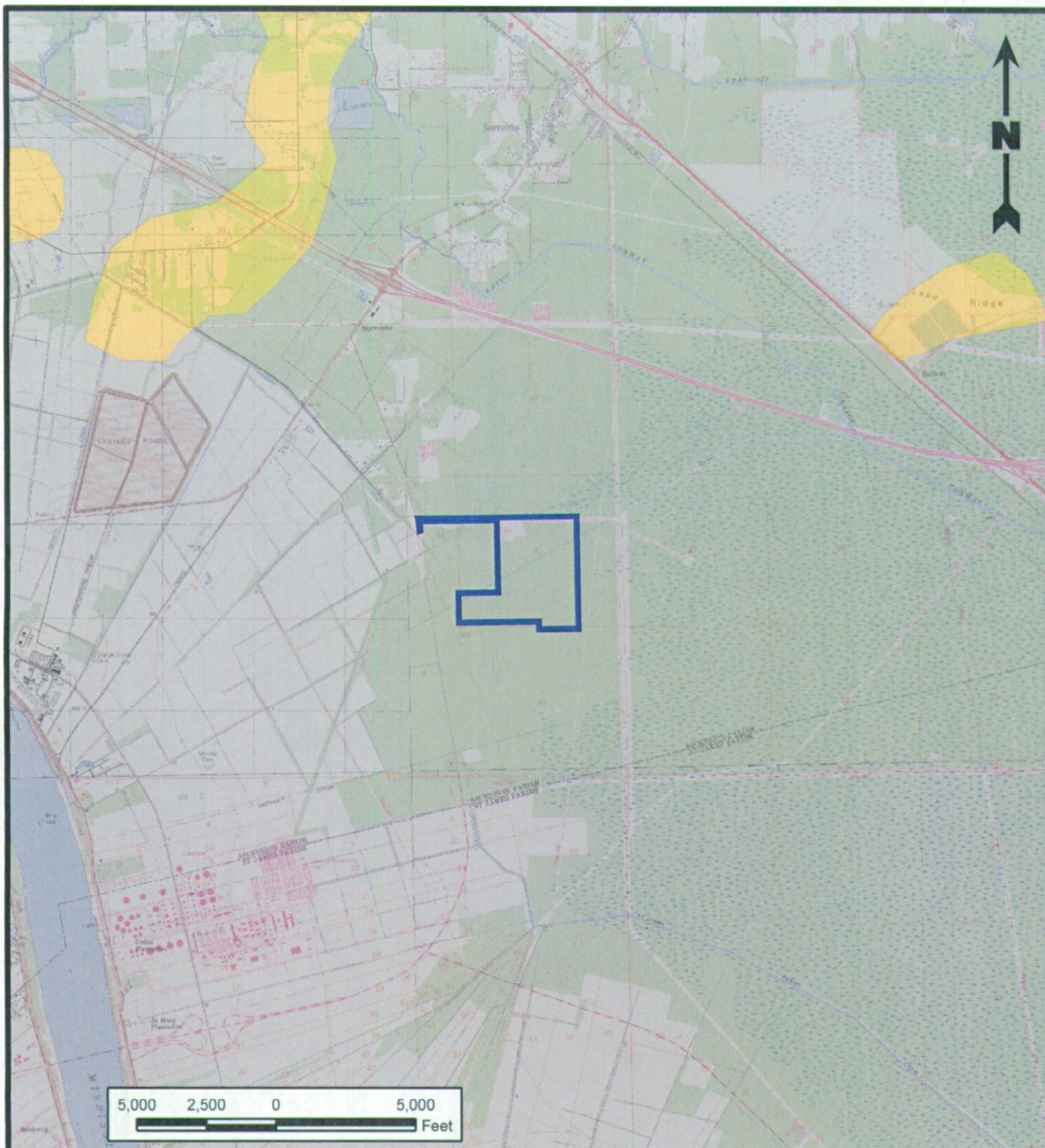
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FIGURE 5
FACILITY LAYOUT PLAN



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FIGURE 6
AQUIFER RECHARGE MAP



Legend

- Property Boundary
- Alluvial Aquifer (No Recharge)
- Southeast Louisiana (Low Recharge)

Reference

Base map comprised of U.S.G.S. 7.5 minute topographic maps, "Gonzales, LA", 1991, "Sorrento, LA" 1962, photorevised 1980, "Donaldsonville, LA" and "Convent, LA" 1962, revised 1994.
 Aquifer data obtained from Louisiana Oil Spill Coordinator's Office (LOSCO) 1999 dataset.

Aquifer Recharge Map

Solid Waste Permit Renewal
 Sorrento, Ascension Parish, Louisiana

BFI Waste Systems of Louisiana, LLC
 Colonial Landfill



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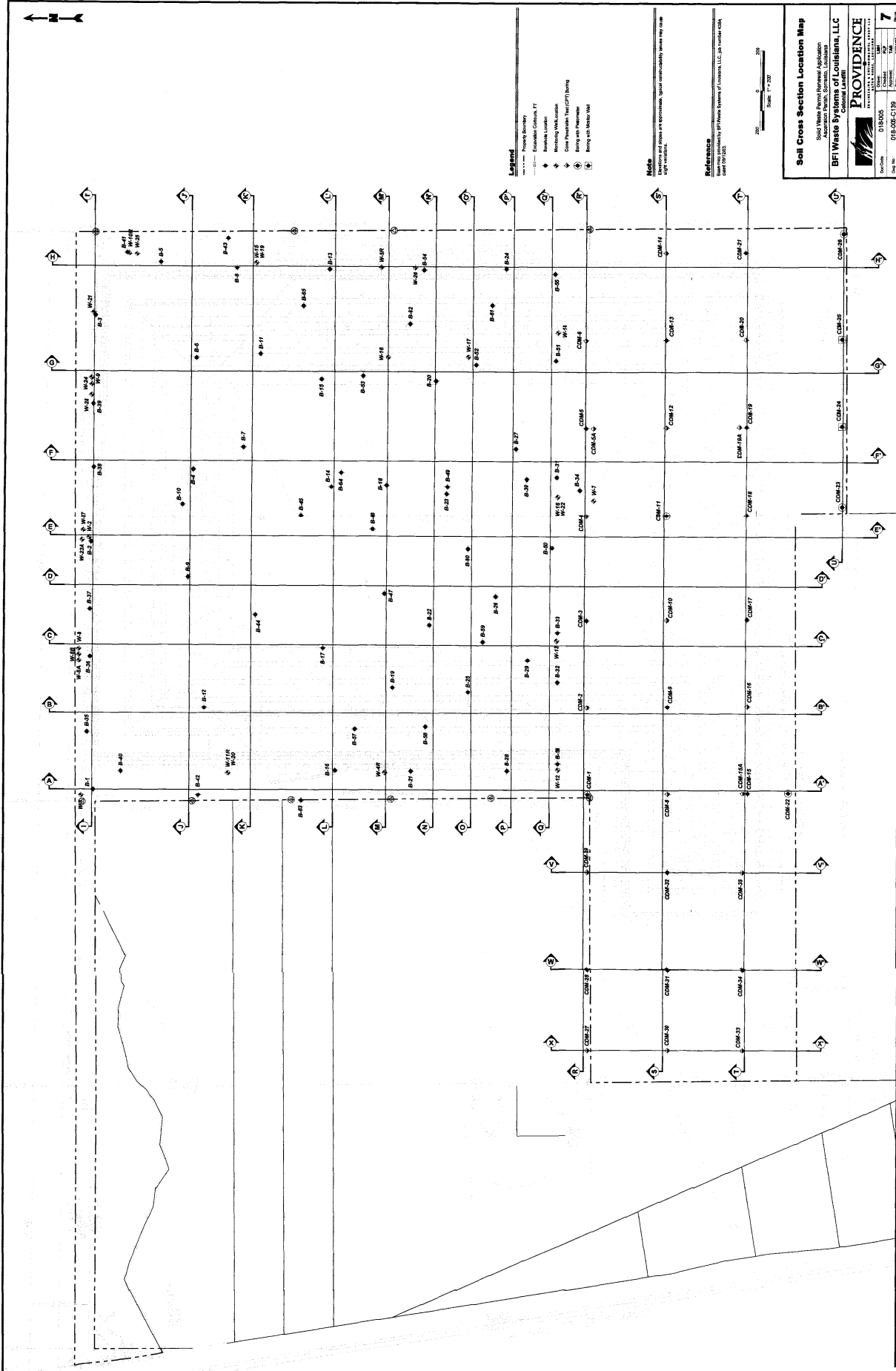
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6
 Figure

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FIGURE 7
SOIL CROSS SECTION LOCATION MAP



Soil Cross Section Location Map

Soil Water Permit Renewal Application
BFI Waste Systems of Louisiana, LLC
Columbia, Louisiana

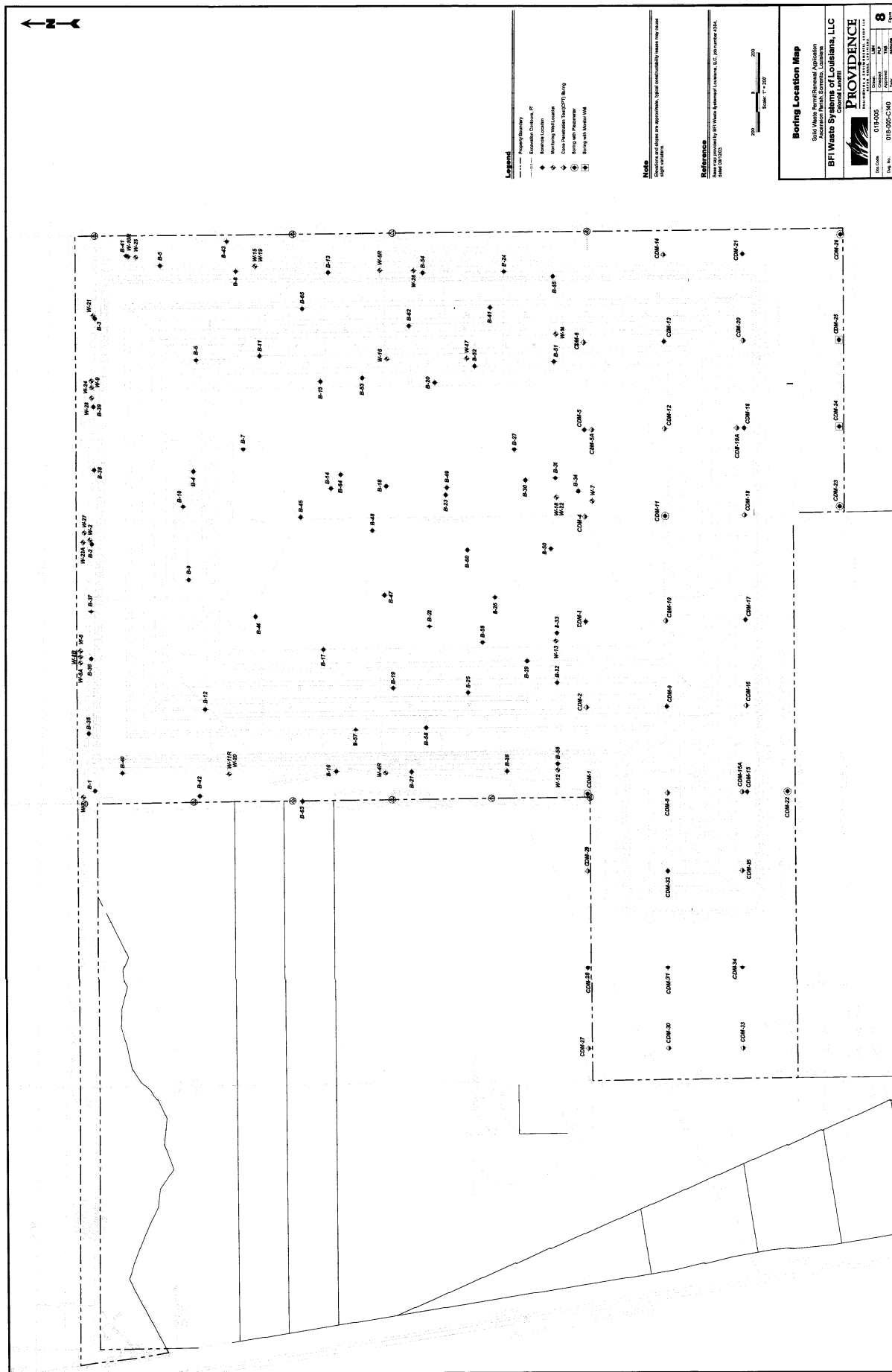
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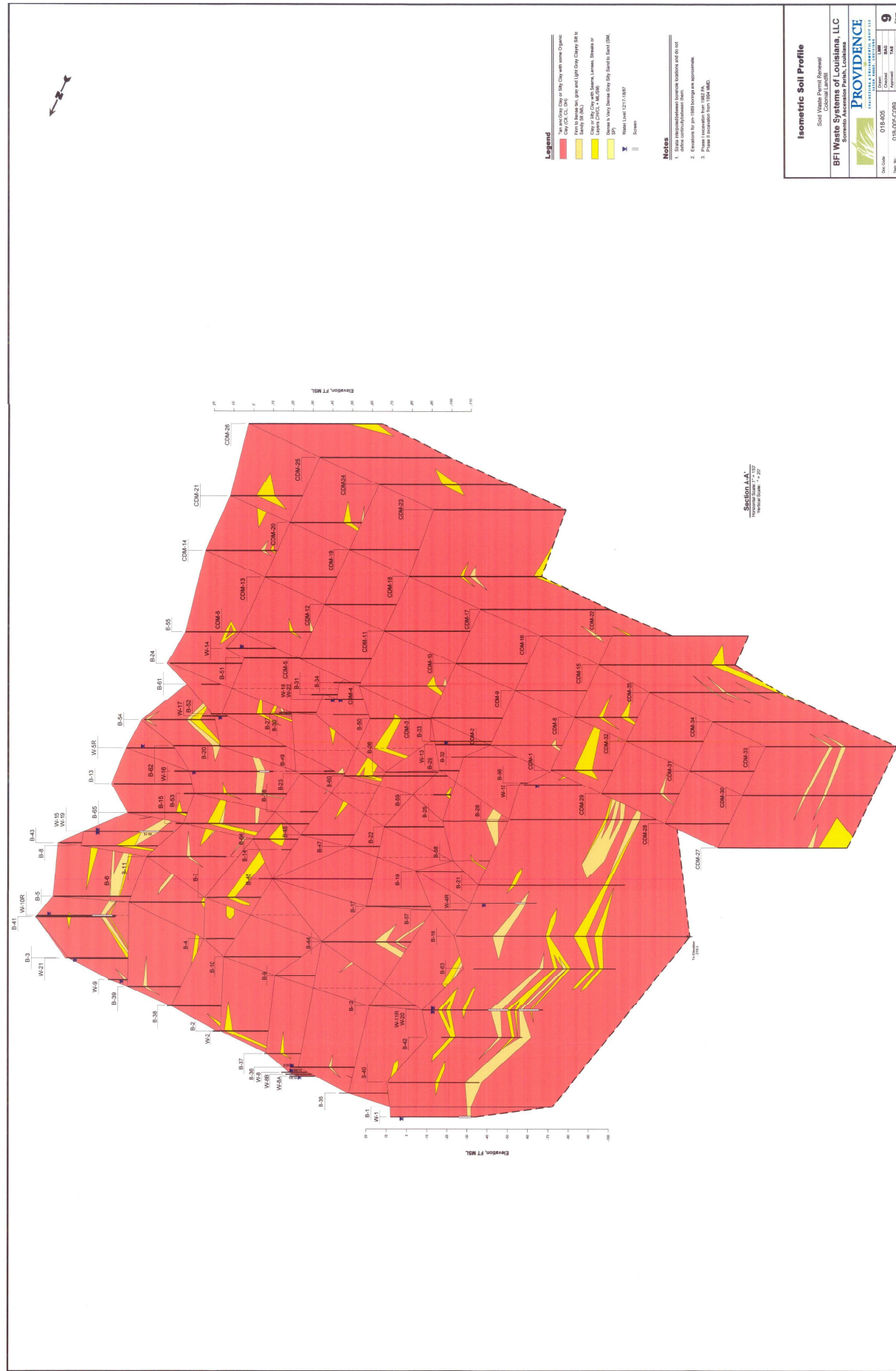
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FIGURE 8
BORING LOCATION MAP



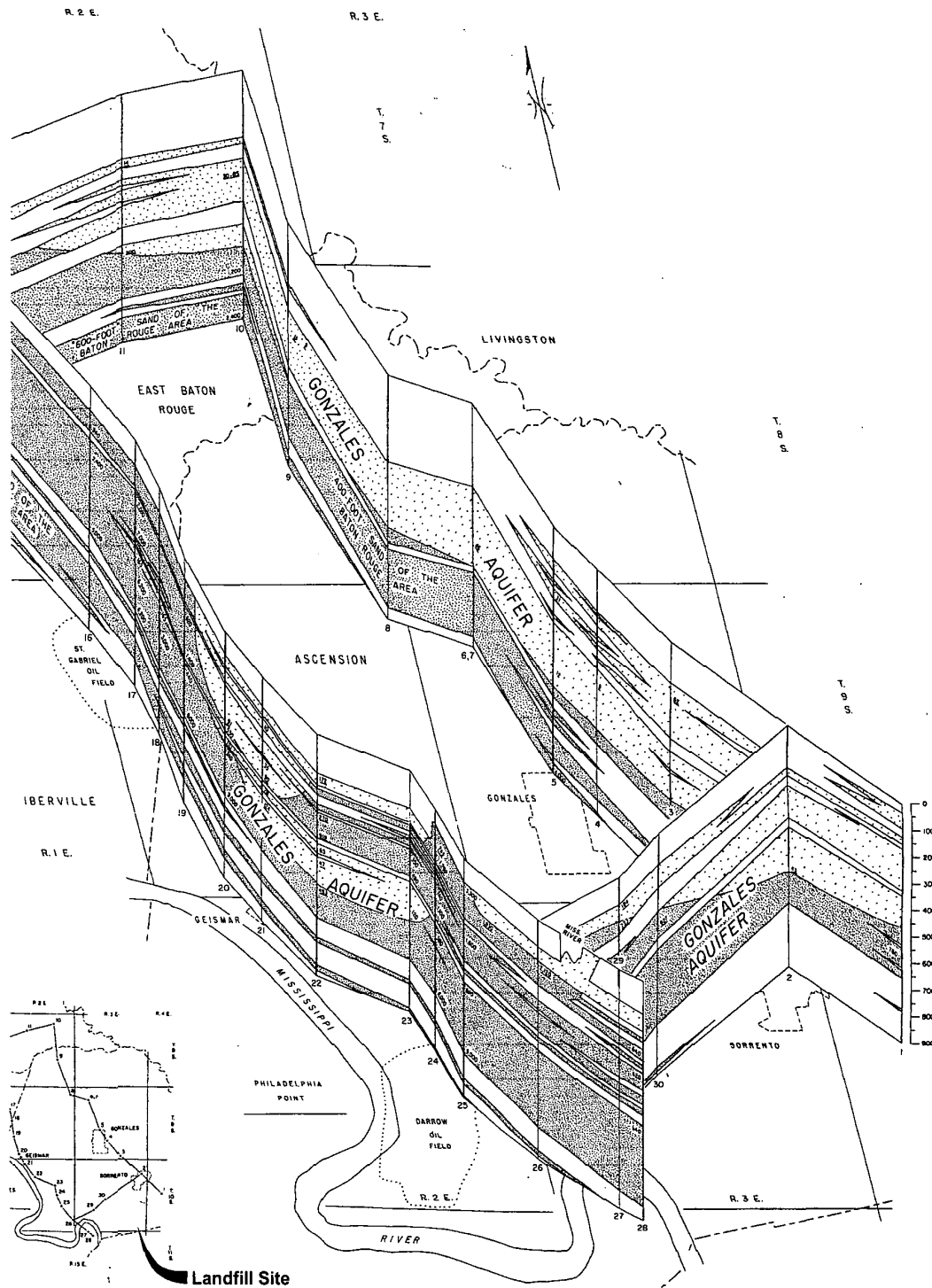
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FIGURE 9
ISOMETRIC SOIL PROFILE



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FIGURE 10
**GEOLOGICAL CROSS-SECTION OF ASCENSION PARISH,
LOUISIANA**



Legend

- FRESH-WATER-BEARING SAND
- BRACKISH-WATER-BEARING SAND
- CLAY OR SILT
- 16 CHLORIDE CONTENT OF WATER, IN PARTS PER MILLION, FROM CHEMICAL ANALYSIS
- 22 CHLORIDE CONTENT OF WATER, IN PARTS PER MILLION, ESTIMATED FROM ELECTRIC LOG
- DATUM IS MEAN SEA LEVEL
- SEE TABLE 3 FOR WELL DESCRIPTIONS

0 1 2 3
MILES

Reference

La. Water Resources Bulletin No. 7, Plate 1.

Geological Cross-Section of Ascension Parish, Louisiana

Solid Waste Permit Renewal
Sorrento, Ascension Parish, Louisiana

BFI Waste Systems of Louisiana, LLC
Colonial Landfill



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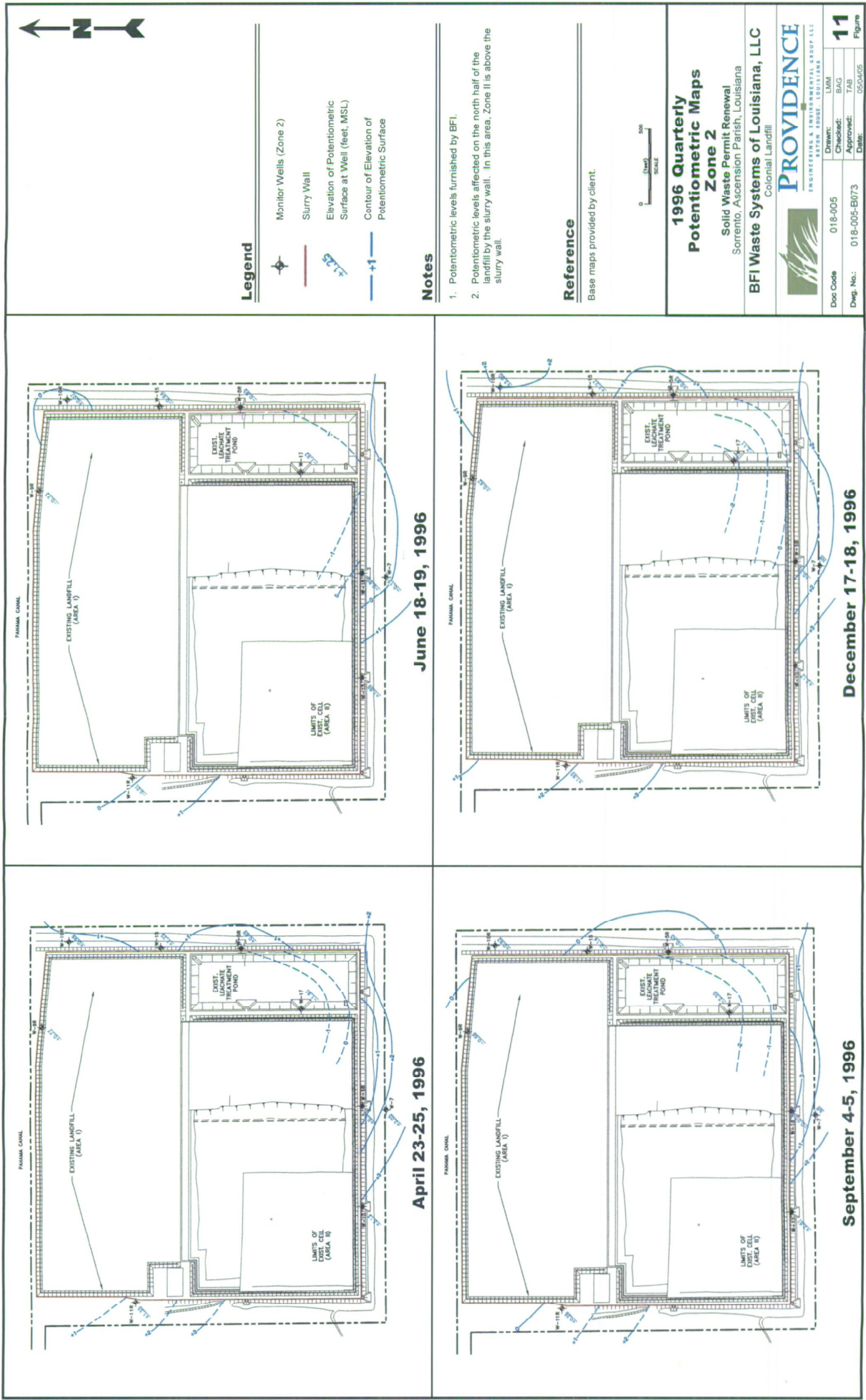
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Figure

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FIGURE 11
1996 QUARTERLY POTENTIOMETRIC MAPS ZONE 2



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FIGURE 12

GROUNDWATER CONTOUR MAPS ZONE 2



Legend

- ⊙ Zone 2 Monitoring Well
- ⊙ Zone 3 Monitoring Well
- 3.0 — Groundwater Contour

Notes

Potentiometric levels furnished by BFI.

Reference

Base maps provided by client.

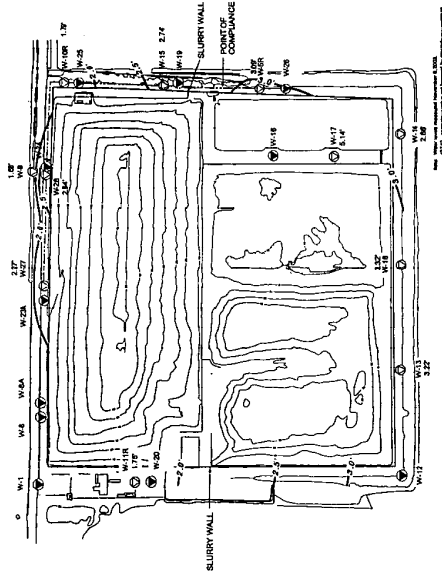


**Groundwater Contour Maps
Zone 2**

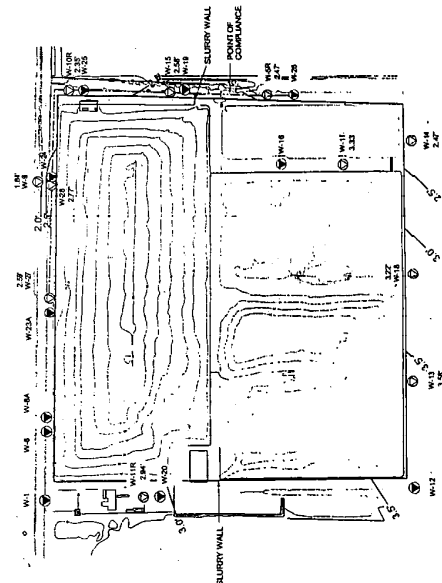
Solid Waste Permit Renewal
Sorrento, Ascension Parish, Louisiana
BFI Waste Systems of Louisiana, LLC
Colonial Landfill



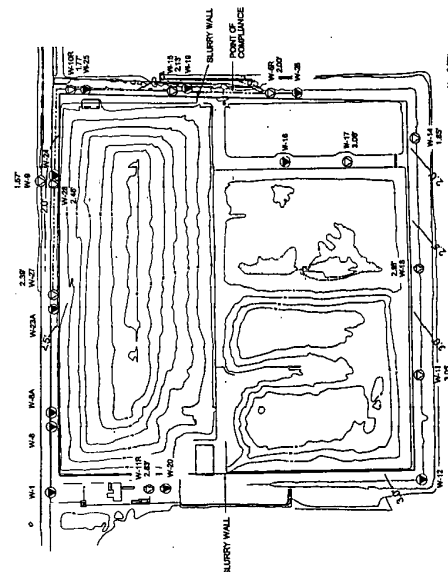
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November 6, 2003



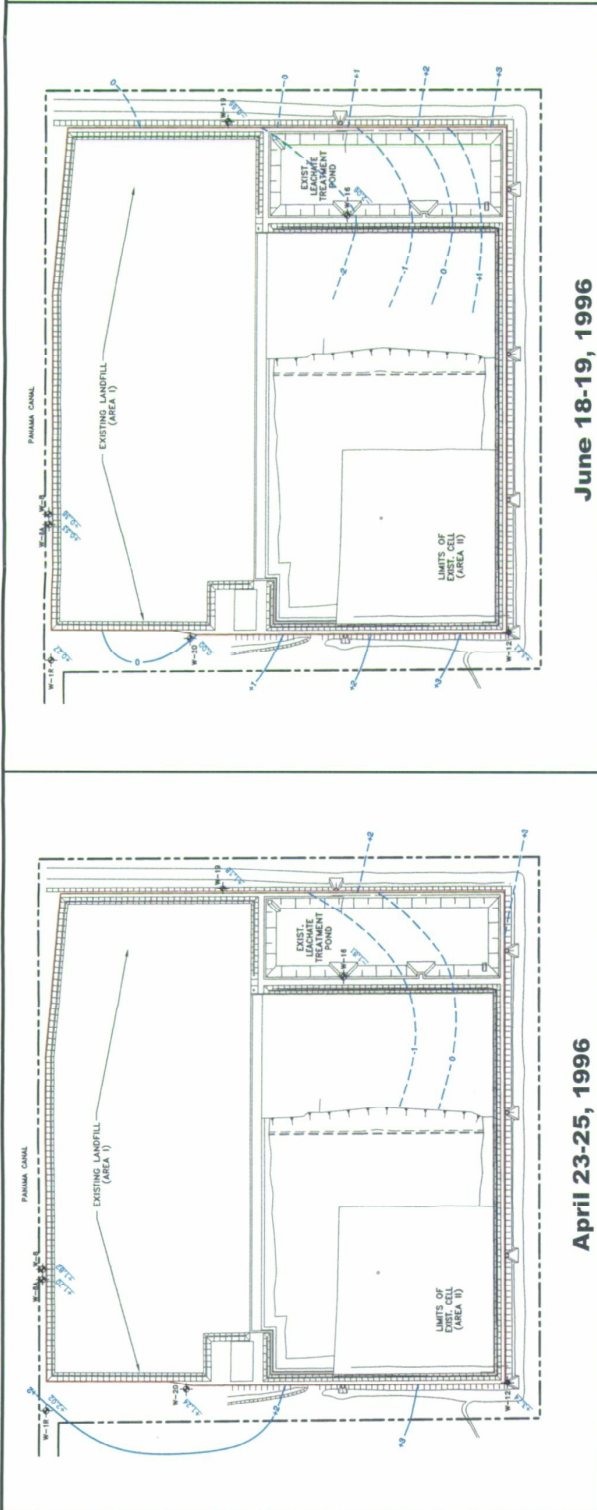
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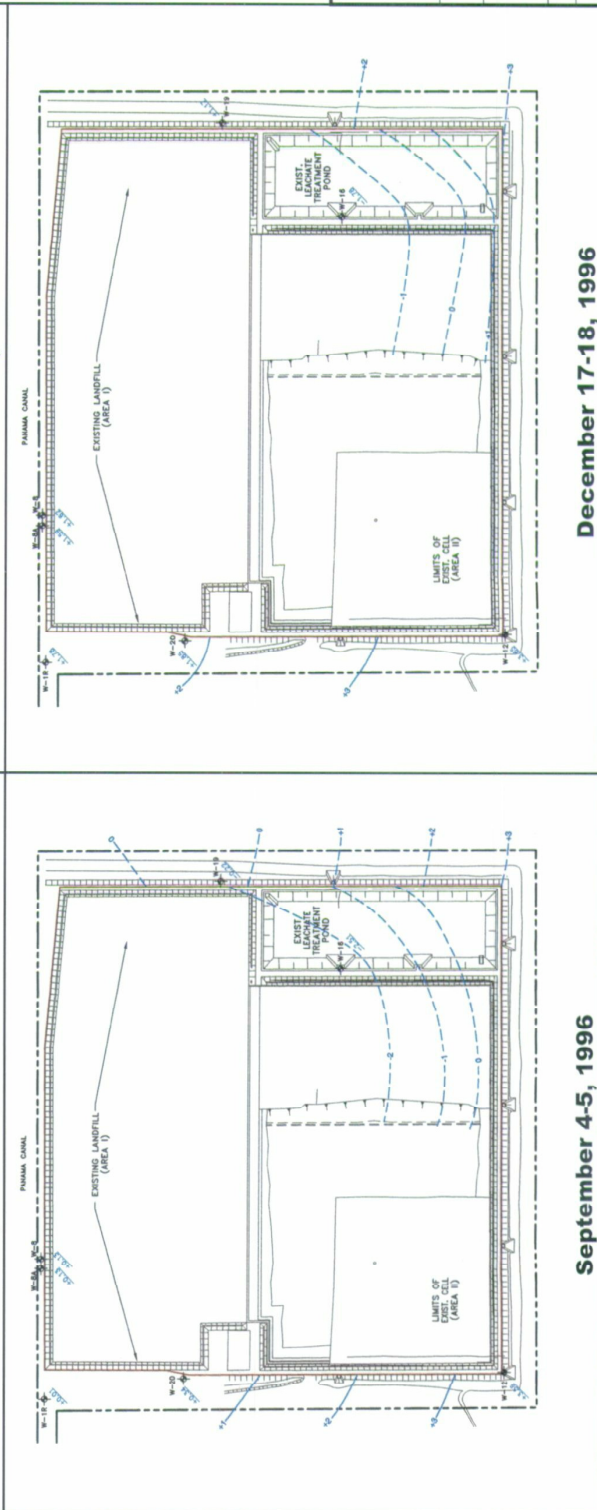
June 3, 2004

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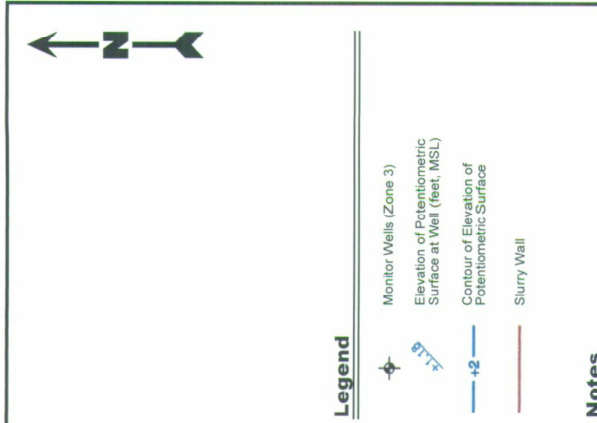
FIGURE 13
1996 QUARTERLY POTENTIOMETRIC MAPS ZONE 3



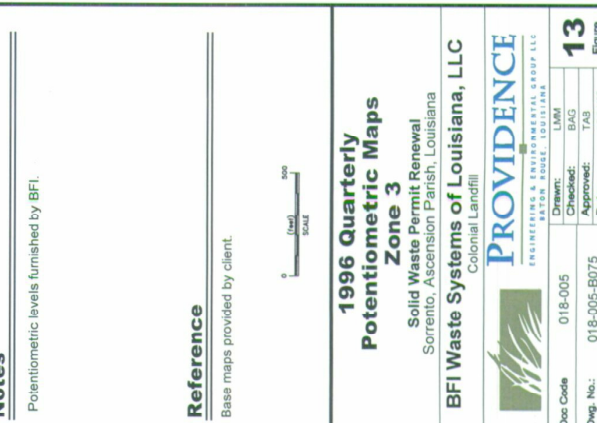
June 18-19, 1996



December 17-18, 1996



April 23-25, 1996



September 4-5, 1996

Legend

- Monitor Wells (Zone 3)
- Elevation of Potentiometric Surface at Well (feet, MSL)
- Contour of Elevation of Potentiometric Surface
- Slurry Wall

Notes

Potentiometric levels furnished by BFI.

Reference

Base maps provided by client.



1996 Quarterly Potentiometric Maps Zone 3
Solid Waste Permit Renewal
Sorrento, Ascension Parish, Louisiana
BFI Waste Systems of Louisiana, LLC
Colonial Landfill

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ENGINEERING & TECHNOLOGICAL GROUP, LLC
Baton Rouge, Louisiana

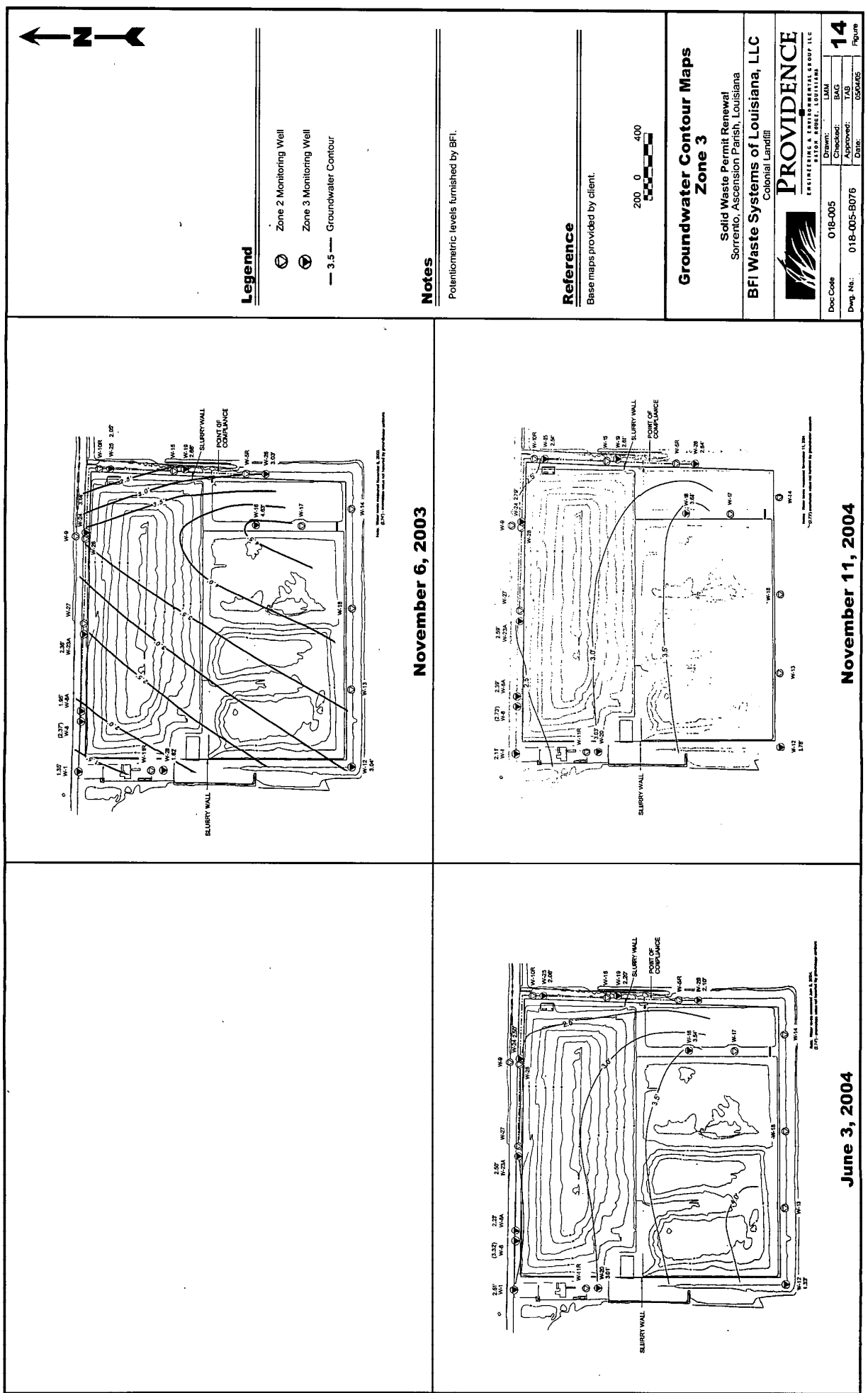
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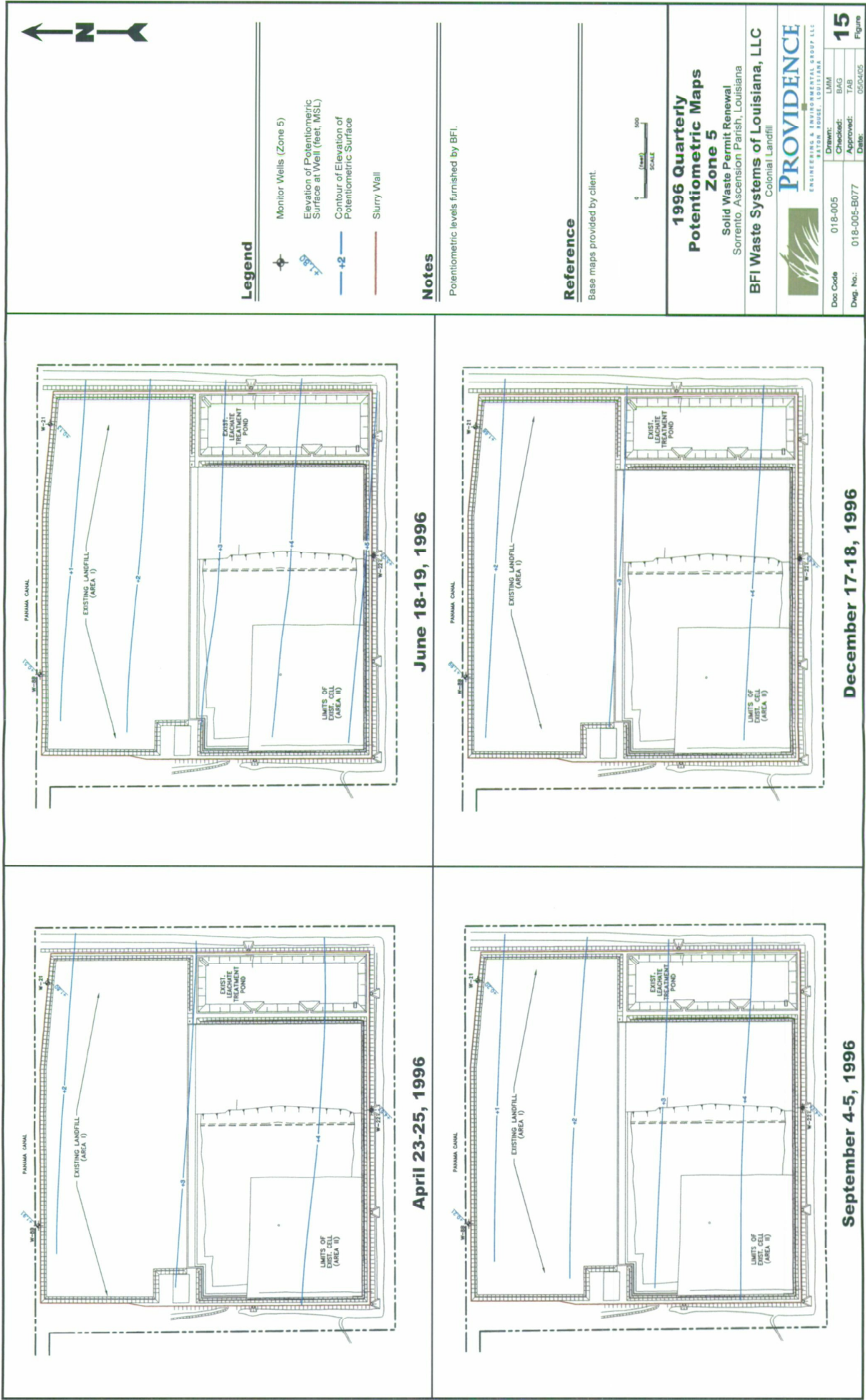
FIGURE 14

GROUNDWATER CONTOUR MAPS ZONE 3



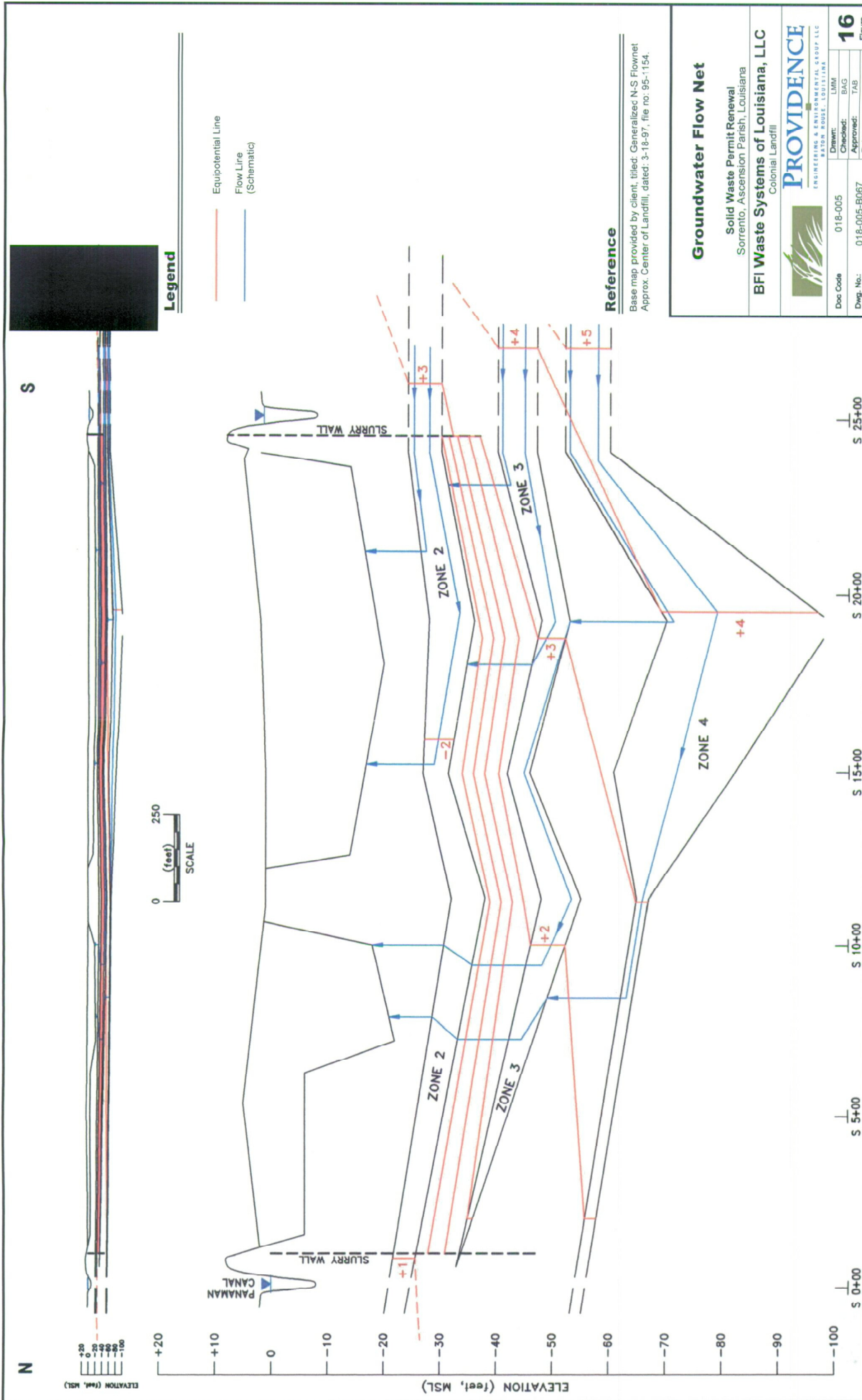
BFI WASTE SYSTEMS OF LOUISIANA, LLC

FIGURE 15
1996 QUARTERLY POTENTIOMETRIC MAPS ZONE 5



BFI WASTE SYSTEMS OF LOUISIANA, LLC

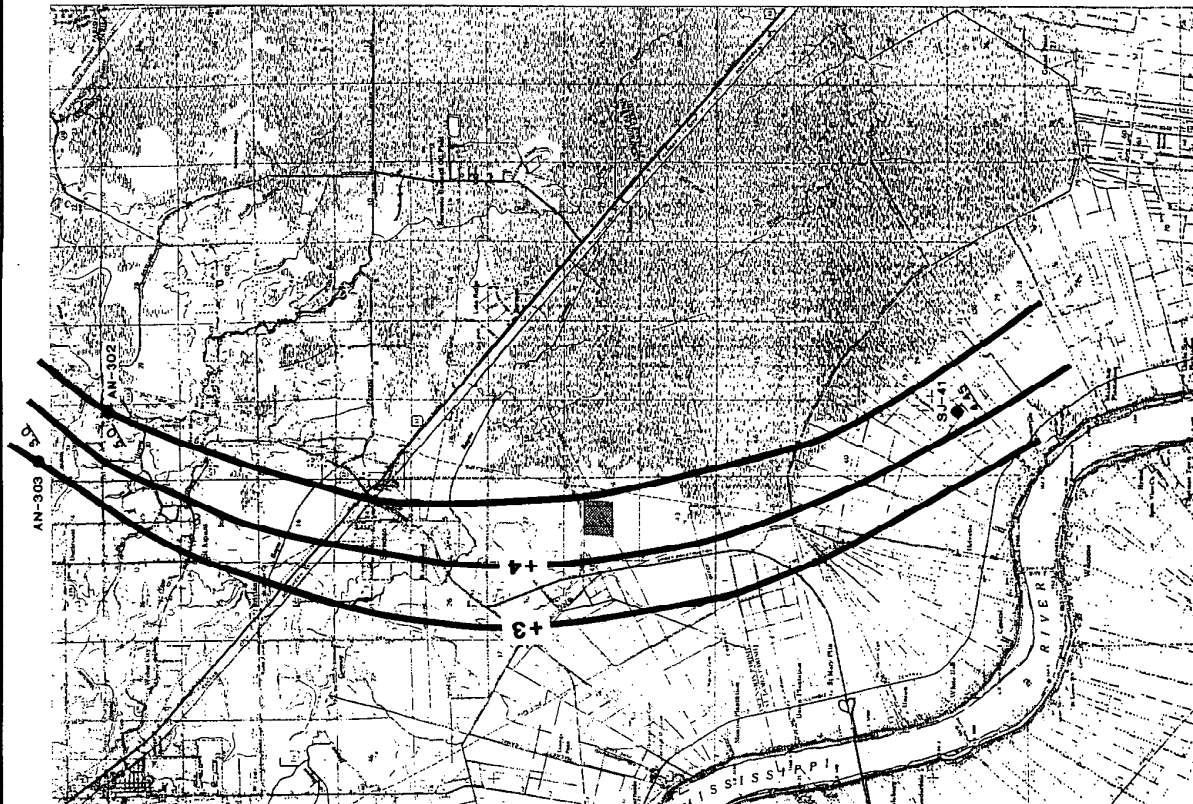
FIGURE 16
GROUNDWATER FLOW NET



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FIGURE 17

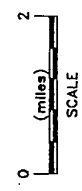
NORCO AQUIFER (NORC) POTENTIOMETRIC MAP 3/78



Legend

- WELL
- ELEVATION OF POTENTIOMETRIC SURFACE AT WELL (feet, MSL)
- CONTOUR OF ELEVATION OF POTENTIOMETRIC SURFACE


NOTE:
Unpublished data provided by USGS.



REFERENCE:
USGS. Quadrangle Map of Donaldsonville,
La. 1962 edition (187).

Reference

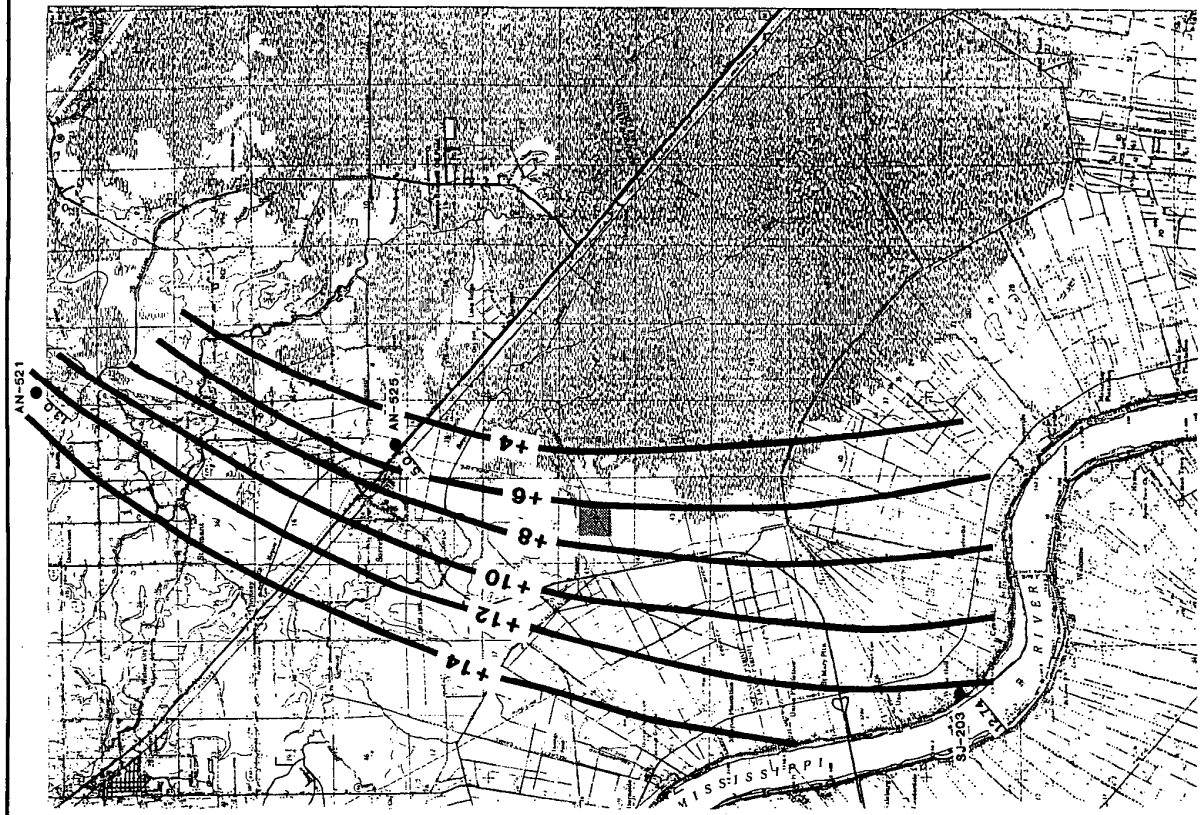
Base map provided by client, titled: NORCO Aquifer (NORC)
Potentiometric Map - 3/78, dated: 4-10-97, file no: 95-1154.

NORCO Aquifer (NORC) Potentiometric Map - 3/78	
Solid Waste Permit Renewal Sorrento, Ascension Parish, Louisiana	
BFI Waste Systems of Louisiana, LLC Colonial Landfill	
 PROVIDENCE <small>ENGINEERING & CONSULTING GROUP, LLC</small> <small>5150A BEECH, LOUISIANA</small>	
Doc Code	018-005
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Checked:	BAG
Approved:	TAB
Dwg. No.:	018-005-B068
Date:	05/04/05
Figure	17

BFI WASTE SYSTEMS OF LOUISIANA, LLC

FIGURE 18

NORCO AQUIFER (NORC) POTENTIOMETRIC MAP 6/92



Legend

- WELL
- ELEVATION OF POTENTIOMETRIC SURFACE AT WELL (feet, MSL)
- CONTOUR OF ELEVATION OF POTENTIOMETRIC SURFACE

NOTE:
Unpublished data provided by USGS.



REFERENCE:
USGS Quadrangle Map of Donaldsonville,
LA, 1962 edition (187).

Reference

Base map provided by client, titled: NORCO Aquifer (NORC)
Potentiometric Map - 6/92, dated: 4-10-97, file no. 93-1154.

**NORCO Aquifer (NORC)
Potentiometric Map - 6/92**

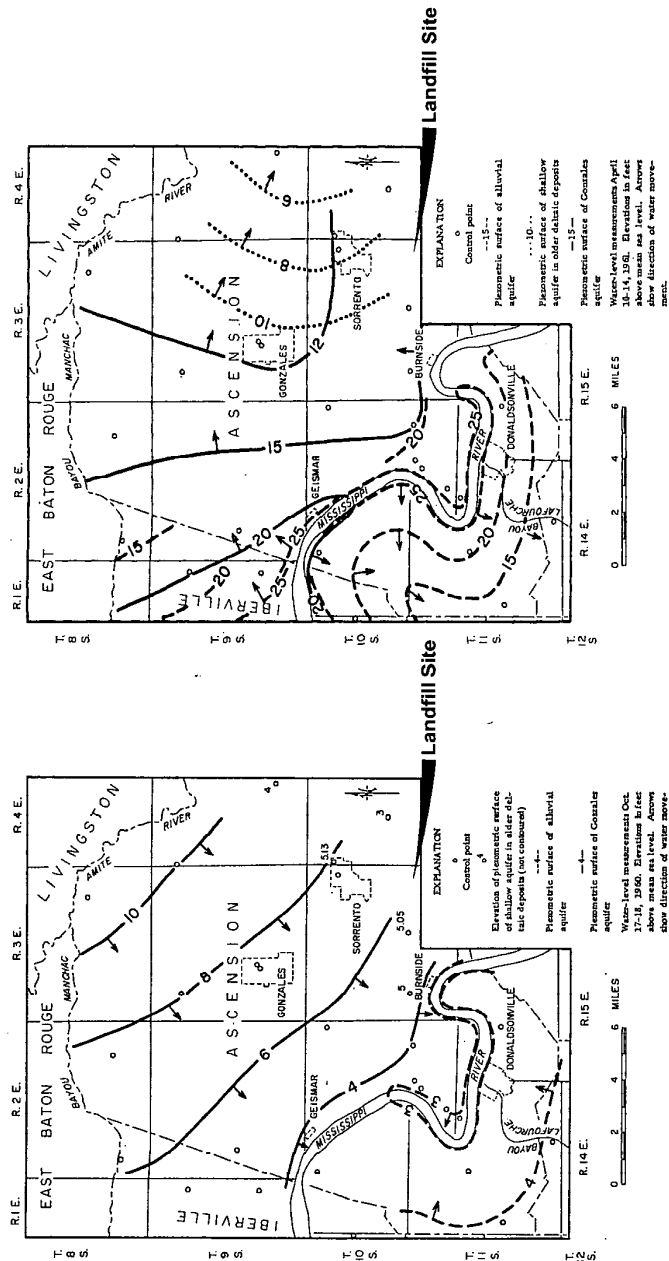
Solid Waste Permit Renewal
Sorrento, Ascension Parish, Louisiana
BFI Waste Systems of Louisiana, LLC
Colonial Landfill



Doc Code	018-005	LUM
Dwg. No.:	018-005-B069	Checked: BAG
		Approved: TAB
		Date: 05/04/05
		Figure 18

FIGURE 19

**PIEZOMETRIC SURFACE OF MAJOR AQUIFERS DURING
ANNUAL LOW AND HIGH STAGE OF THE MISSISSIPPI
RIVER**



Reference

Base map obtained from the "Water Resources Bulletin No. 7, Ground Water In The Gensai-Gonzales Area, Ascension Parish, Louisiana" October 1965.

Piezometric Surface of Major Aquifers During Annual Low and High Stage of The Mississippi River

Solid Waste Permit Renewal
Sorrento, Ascension Parish, Louisiana

BFI Waste Systems of Louisiana, LLC
Colonial Landfill



ENGINEERING & ENVIRONMENTAL GROUP LLC
BAYOU ROUGE, LOUISIANA

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		Approved By	TAB
		Date:	05/04/05

19

Figure

BFI WASTE SYSTEMS OF LOUISIANA, LLC

FIGURE 20

PIEZOMETERS/MONITOR WELLS LOCATIONS MAP

Doc Code	018-005	Drawn:	LMH	20	Figure
		Checked:	PLP		
		Approved:	TAB		
		Date:	06/13/06		
Orig. No.:	018-005-B138				